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THE NEW CALENDAR
OF
GREAT MEN

BIOGRAPHIES OF THE 559 WORTHIES
OF ALL AGES & NATIONS IN THE
POSITIVIST CALENDAR OF
AUGUSTE COMTE

EDITED BY
FREDERIC HARRISON
S. H. SWINNY AND F. S. MARVIN

NEW EDITION, REVISED AND ENLARGED

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PREFACE

THIS book, of which the present is the second edition, was first published in 1892, having been projected in 1883 by the Newton Hall Committee, to illustrate the general theory of historical development put forth in various works by Auguste Comte. His entire scheme of Sociology is based on a sense of the unity of human evolution. And with a view, he has told us, to impress visually on the public mind, a general conception of the Past, and to revive the sense of continuity in the ages, he published in April 1849, a sheet which he described as the *Positivist Calendar*, "or concrete view of the preparatory period of man's history." It was avowedly provisional, intended specially for the Nineteenth Century, and for Western Europe. Therein he arranged a series of typical names, illustrious in all departments of thought and power, beginning with Moses and ending with the poets and thinkers of the first generation of the nineteenth century. The greatest names were associated with the months ; 52 other great names with the weeks ; and one worthy was given to each day of the year, less important types being in many cases substituted for those in Leap Year. There are in all 559 * names of eminent men and women in this Calendar, distributed into four classes of greater or less importance ; they range over all ages, races, and countries ; and they embrace Religion, Poetry, Philosophy, War, Statesmanship, Industry, and Science.

The present volume is a collection of condensed biographies of all the 559 persons thus selected as types of the general advancement of civilisation. Each biographical notice varies in fulness according to the importance of each name. The main object has been to give an estimate of the effective work of each, and his contribution to civilisation—the facts of the life being stated sufficiently to explain the place he occupies in the sum of human progress. The space of a single volume does not admit of exhaustive treatment of biographical or literary details ; and this book does not enter into competition with works on biography of a voluminous and miscellaneous kind. The aim has been to consult the best, and, if possible, the contemporary authorities for each life, and to summarise the results without discussion.

* Six of these are collective names, as *e.g.* "The Troubadours."

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The plan of the book differs essentially, it is believed, from that of any biographical work. It is not a *dictionary*. The names are not given in alphabetical order, but in historical sequence ; and the various biographies form a connected series of studies. Each month or section treats a separate subject, such as Poetry, Philosophy, or Policy, for which one author for the most part has been responsible. And each week or sub-section treats a subordinate branch of the subject to which its week is devoted. Within each month and week the order of names is chronological—at least for all names of the same rank. Thus the most eminent men are grouped in order of time within that branch of human progress to which their lives were dedicated. Consequently, each separate section of this book may be read in a continuous series as a distinct chapter dealing with a special subject. And each section, or month, is preceded by its proper introduction. The aim of the work is to offer a biographical Manual of the general course of civilisation.

In another respect, also, the work differs from the plan of any Biographical Dictionary. The names are not selected with regard to common fame, or the space they occupy in literary discussion. The roll of worthies—many of them, it is true, with abundant shortcomings and failings—consists of those only who are thought to have promoted the progress of mankind. Thus names of famous men like those of Alcibiades, Pompey, Philip II., and Napoleon will not be found ; nor are all those included about whom many volumes have been written. The names are chosen not as being those of Saints or Heroes ; but as men to be remembered for effective work in the development of human society—as society existed in Western Europe about the beginning of the nineteenth century.

Nor does the book pretend to supply the reader with any such body of miscellaneous information as is to be found in an *Encyclopædia*. Its limits and its scope alike exclude this. The Calendar itself was regarded by its author as a work of art, carefully balanced and contrasted in its parts, and designed to convey a vivid impression of the *synthetic* or organic character of Man's general progress. For this reason it takes note only of work of a constructive and creative kind ; and the most eminent destructives, revolutionists, and Protestants are not, as such, included, however useful for their time their solvent action may have been. The Calendar is that part of the work of Comte which has met with the greatest amount of assent ; and it has been found useful and suggestive by very many who reject all other parts of Comte's system. They adopt the description of it given by John Stuart Mill, who says : " No kind of human eminence, really useful, is omitted, except that which is merely negative and destructive."

The authors of this Manual have taken the list of names so selected by Comte without any attempt to modify it. They are quite aware that strong reasons can be urged for the insertion or omission of many names in the list ; and it would be grossly absurd to imagine

that any possible list of names could be incapable of serious amendment. But the Positivist Calendar is a very careful and balanced whole, constructed with immense care to mark the relative importance of different movements, races, and ages. It occupied many years of thought and discussion, and was continually submitted to very competent minds in the course of preparation. We are not aware of any other or competing classification of eminent names in all ages and in all branches of human activity ; and the present writers entirely disclaim any competence to revise or modify the list as a whole. It would be easy to suggest a score of names that might be left out or added ; but if the process of revision were once begun, it is difficult to see where it would end, or how any two minds could agree in classifying 500 or 600 names.

The omission from the list of all eminence of a revolutionary and solvent kind removes many sources of difference. And as to at least 500 names in the whole list competent authorities would probably agree. As to the remainder, considerable difference of opinion might be found. But perhaps the various critics would differ as much from one another as from Comte. It is not possible here to notice or explain the grounds upon which he included or omitted any name ; but some of the more striking cases which may occur to the reader will be treated in their proper place, and in the introductory chapters to each month.

It will be observed that the Calendar does not include any recent names ; and it ends entirely with the first generation of the nineteenth century. With very trifling exceptions (the chief being the invention of the electric telegraph), nothing is included later than the year 1830, the date of the first publication of the *Philosophie Positive* ; nor, with still fewer exceptions, is any one included who was born in the nineteenth century. This Manual does not, therefore, treat of any contemporaries, however eminent ; nor does it reach down to the lives of Faraday, Darwin, Helmholtz, Virchow, Thomson, Dumas, Pasteur, Hugo, and Tennyson. The list itself was conceived about 1845, and finally published in 1849 ; and, in many things, it is evident that we know more, and judge otherwise, than was possible in Paris seventy years ago. But as the great body of the work treats of men in distant times, almost all of whom lived before the nineteenth century, this is a matter of minor importance, applying mainly to a few names in poetry and art.

It must be borne in mind that the attempt to arrange illustrious names within the mechanical uniformities of months and weeks imposes certain limits and modifies the selection. The device has advantages and inconveniences of its own. And, if it restricts the field and involves some anomalies, it tends, like the exigencies of metre and rhyme in poetry, to give unity, conciseness, and proportion. A list of eminent persons drawn up without any artificial limits would be far easier to frame ; but it would be very difficult to keep it from diffuseness, and impossible to give it symmetry.

The first object of Comte was to give a concrete picture of human evolution: and, so far as is known, it is the only attempt of the kind. But it is not a class-list of rival candidates for fame. It is in no sense exclusive; it is provisional; and it is in every sense relative—framed with a view, not to personal merit, but to historical results. It must be understood that this Calendar, framed as it was in the first half of the nineteenth century, is a historical summary of the progress of civilisation down only to that date.

Little need be said here as to the form of the Calendar itself, which will be understood by reference to the Table below. The anomalies and confusion of our actual Calendar, which is an amalgamation of Egyptian, Jewish, Roman, and Papal institutions, are due partly to the impossibility of dividing the year exactly by weeks, partly to the caprice of the rulers by whom it has been arranged and revised. (*See* SOSIGENES.) The device, suggested it is said by M. Littré, of dividing the year into 52 weeks + an extra *dies non*, and then of dividing the year into 13 months of 4 weeks each, enabled Comte to frame a perfectly symmetrical Calendar. The last day of the year was to be an extra day of Festival, devoted to the memory of All the Dead; and in Leap Year a second extra day was added, similarly consecrated to Eminent Women. Thus, not only the year, but each month would regularly begin with a new week. Anniversaries and periodical occasions fixed for special days of the week would always fall on the same days of the month; and anniversaries and periodical occasions fixed for certain days of any month would always fall on the same day of the week. Every calendar month would mean exactly 4 weeks; the half-year would always be 26 weeks. There never would be 5 Mondays in any month; New Year's Day or Midsummer Day would always fall on the same week-day; and Leap Year would not disturb the Calendar, except by adding one extra day at the end of the year.

It is particularly noted that the references to books at the end of each article *are not given as the authorities on which the writers have relied*, but solely to suggest to the general reader of English such books as he may find at hand in a fairly good library. Every effort has been made to draw the articles themselves from original sources, and, in the case of writers, from their own works. The references given at the foot, in very many cases added subsequently by a different hand, have been restricted to well-known works of easy access, and for the most part in English, so as not to burden the general reader with bibliographical details and with references to works which he cannot easily procure, or could not read for himself. Biographical dictionaries, encyclopædias, and dictionaries of reference, English or foreign, are not specially noticed except to refer to particular articles by name. The works of Comte are referred to thus:—*Philosophie Positive*, 2nd ed. in French (*Phil. Pos.*), by volume and leçon; *Positive Polity*, in the English translation, 1875-1877, 4 vols. (*Pos. Pol.*), by volume and page. Other works of

Comte referred to are: *Early Essays in Social Philosophy* (Eng. trans.) as *Early Essays*, and by page; *Catechism of Positive Religion* (Eng. trans.) as *Positivist Catechism*; *Géometrie Analytique*; *Astronomie Populaire*; *Synthèse Subjective*—the last three in the original French.

Some brief references to contemporary portraits have been added. These do not profess to be exhaustive, and in general preference has been given to those portraits which are easily accessible. In these references the following abbreviations have been used:

B.M., British Museum, London; C., Musée Carnavalet, Paris; Camb., Cambridge; Edin., Edinburgh; Engr., engraving or engraved; F., Florence; I., Institute, Paris; N.G., National Gallery, London; N.P.G., National Portrait Gallery, London; Oxf., Oxford; R.S., Royal Society, London; S.P.G., Scottish National Portrait Gallery, Edinburgh; W., Wallace Collection, Hertford House, London.

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FREDERIC HARRISON,
S. H. SWINNY,
F. S. MARVIN,
} *Editors.*

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1 *Shakespeare*, 132.
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Thucydides,	102
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Toussaint L'Ouverture,	632
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ULPIAN,	214
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Walpole,	617
Washington,	627
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Weber,	519
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William the Silent,	612
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Worcester,	439
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ZENO,	112
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Zoroaster,	16

CALENDAR

	First Month MOSES THEOCRATIC CIVILISATION	Second Month HOMER ANCIENT POETRY	Third Month ARISTOTLE ANCIENT PHILOSOPHY
1	Prometheus. . ..... *Cadmus*	Hesiod.	Anaximander.
2	Hercules. ..... *Theseus*	Tyrtæus..... *Sappho*	Anaximenes.
3	Orpheus. ..... *Tiresias*	Anacreon.	Heraclitus.
4	Ulysses.	Pindar.	Anaxagoras.
5	Lycurgus.	Sophocles. ... ... *Euripides*	Democritus..... *Leucippu*
6	Romulus.	Theocritus..... *Longus*	Herodotus.
7	NUMA.	ÆSCHYLUS.	THALES.
8	Belus. ..... *Semiramis*	Scopas.	Solon.
9	Sesostris.	Zeuxis.	Xenophanes.
10	Menu.	Ictinus.	Empedocles.
11	Cyrus.	Praxiteles.	Thucydides.
12	Zoroaster.	Lysippus.	Archytas. ..... *Philola*
13	The Druids. ..... *Ossian.*	Apelles.	Apollonius of Tyana.
14	BUDDHA.	PHIDIAS.	PYTHAGORAS.
15	Fo-Hi.	Æsop. ..... *Pilpay*	Aristippus.
16	Lao-Tse.	Plautus.	Antisthenes.
17	Mencius.	Terence. ..... *Menander*	Zeno.
18	The Theocrats of Thibet.	Phædrus.	Cicero. ..... *Pliny the Young*
19	The Theocrats of Japan.	Juvenal.	Epictetus. .. .. *Arria*
20	Manco-Capac. .... *Kamehameha*	Lucian.	Tacitus.
21	CONFUCIUS.	ARISTOPHANES.	SOCRATES.
22	Abraham. ..... *Joseph*	Ennius.	Xenocrates.
23	Samuel.	Lucretius.	Philo of Alexandria.
24	Solomon. ..... *David*	Horace.	St. John the Evangelist.
25	Isaiah	Tibullus.	St. Justin. ..... *St. Irenæ*
26	St. John the Baptist.	Ovid.	St. Clement of Alexandria.
27	Haroun-al-Raschid. .. *Abderrahman*	Lucan.	Origen. ..... *Tertullia*
28	MAHOMET. [*III.*	VIRGIL.	PLATO.

	Eighth Month DANTE MODERN EPIC POETRY	Ninth Month GUTENBERG MODERN INDUSTRY	Tenth Month SHAKESPEARE THE MODERN DRAMA
1	The Troubadours.	Marco Polo..... *Chardin*	Lope de Vega..... *Montalv*
2	Boccaccio. ..... *Chaucer*	Jacques Cœur..... *Gresham*	Moreto. ..... *Guillen de Ca*
3	Rabelais. ..... *Swift*	Vasco da Gama..... *Magellan*	Rojas. ..... *Guevar*
4	Cervantes.	Napier. ..... *Briggs*	Otway.
5	La Fontaine. ..... *Burns*	Lacaille. ..... *Delambre*	Lessing.
6	De Foe. ..... *Goldsmith*	Cook. ..... *Tasman*	Goethe.
7	ARIOSTO.	COLUMBUS.	CALDERON.
8	Leonardo da Vinci..... *Titian*	Benvenuto Cellini.	Tirso.
9	Michael Angelo..... *Paul Veronese*	Amontons..... *Wheatstone*	Vondel.
10	Holbein. ..... *Rembrandt*	Harrison..... *Pierre Leroy*	Racine.
11	Poussin. ..... *Lesueur*	Dollond..... *Graham*	Voltaire.
12	Velazquez..... *Murillo*	Arkwright..... *Jacquard*	Metastasio. ..... . *Alfi*
13	Teniers..... *Rubens*	Conté.	Schiller.
14	RAPHAEL.	VAUCANSON.	CORNEILLE.
15	Froissart. ..... *Joinville*	Stevin..... *Torricelli*	Alarcon.
16	Camoens. ..... *Spenser*	Marriotte. ..... *Boyle*	Mme. de Motteville. *Mme. Rola*
17	The Spanish Romancers.	Papin. ..... *Worcester*	Mme. de Sévigné. *Lady M. Monta*
18	Chateaubriand.	Black.	Lesage. ..... *Ner*
19	Walter Scott..... *Cooper*	Jouffroy. ..... *Fulton*	Mme. de Staal. ..... *Miss Edgewo*
20	Manzoni.	Dalton..... *Thilorier*	Fielding ..... *Richards*
21	TASSO.	WATT.	MOLIÈRE.
22	Petrarch. [*and Bunyan*	Bernard de Palissy.	Pergolesi. ..... *Palestri*
23	Thomas à Kempis. *Louis of Granada*	Guglielmini ..... *Riquet*	Sacchini. ..... *Gré*
24	Mme. de Lafayette.... *Mme. de Staël*	Duhamel (du Monceau)... *Bourgelat*	Gluck. ..... *Lu*
25	Fénelon..... *St. Francis of Sales*	Saussure. ..... *Bouguer*	Beethoven. ..... *Han*
26	Klopstock ..... *Gessner*	Coulomb. ..... *Borda*	Rossini. ..... *We*
27	Byron. . . *Elisa Mercœur and Shelley*	Carnot. ..... *Vauban*	Bellini. ..... *Donizi*
28	MILTON.	MONTGOLFIER.	MOZART.

Fourth Month

ARCHIMEDES

ANCIENT SCIENCE

hrastus.
hilus.
ratus.
...
na. ..... *Averrhoes*
OCRATES.

...
us.
osmus of Bithynia.
..... *Ctesibius*
...
antus.
LONIUS.

...
us ..... *Aratus*
us ..... *Nearchus*
rchus ..... *Berosus*
thenes ..... *Sosigenes*
ay.
gnus ..... *Nasir-Eddin*
ARCHUS.

...
lella.
rus.
...
nus.
ch.
Y THE ELDER.

Fifth Month

CÆSAR

MILITARY CIVILISATION

Miltiades.
Leonidas.
Aristides.
Cimon.
Xenophon.
Phocion ..... *Epaminondas*
THEMISTOCLES.

Pericles.
Philip.
Demosthenes.
Ptolemy I.
Philopœmen.
Polybius.
ALEXANDER.

Junius Brutus.
Camillus ..... *Cincinnatus*
Fabricius ..... *Regulus*
Hannibal.
Æmilius Paullus.
Marius ..... *The Gracchi*
SCIPIO.

Augustus ..... *Mæcenas*
Vespasian ..... *Titus*
Hadrian ..... *Nerva*
Antoninus ..... *Marcus Aurelius*
Papinian ..... *Ulpian*
Alexander Severus ..... *Aëtius*
TRAJAN.

Sixth Month

ST. PAUL

CATHOLICISM

St. Luke ..... *St. James*
St. Cyprian.
St. Athanasius.
St. Jerome.
St. Ambrose.
St. Monica.
ST. AUGUSTIN.

Constantine.
Theodosius.
St. Chrysostom ..... *St. Basil*
St. Pulcheria ..... *Marcian*
St. Geneviève of Paris.
St. Gregory the Great.
HILDEBRAND.

St. Benedict ..... *St. Antony*
St. Boniface ..... *St. Austin*
St. Isidore of Seville ..... *St. Bruno*
Lanfranc ..... *St. Anselm*
Heloise ..... *Beatrice*
Architects of Mid. Ages ..... *St. Benezet*
ST. BERNARD.

St. Francis Xavier ... *St. Ignatius Loyola*
St. Ch. Borromeo ..... *Fredk. Borromeo*
St. Theresa ..... *St. Catharine of Siena*
St. Vincent de Paul ..... *L'Abbé de l'Epée*
Bourdaloue ..... *Claude Fleury*
W. Penn ..... *G. Fox*
BOSSUET.

Seventh Month

CHARLEMAGNE

FEUDAL CIVILISATION

Theodoric the Great.
Pelayo.
Otho the Great .... *Henry the Fowler*
St. Henry.
Villiers. ..... *La Valette*
Don John of Austria .. *John Sobieski*
ALFRED.

Charles Martel.
The Cid. ..... *Tancred*
Richard I. ..... *Saladin*
Jeanne Darc. ..... *Marina*
Albuquerque ..... *W. Raleigh*
Bayard.
GODFREY.

St. Leo the Great ..... *Leo IV.*
Gerbert ..... *Peter Damiani*
Peter the Hermit.
Suger ..... *St. Eligius*
Alexander III. ..... *St. T. Becket*
St. Francis of Assisi .... *St. Dominic*
INNOCENT III.

St. Clotilde.
St. Bathilda. *St. Mathilda of Tuscany*
St. Stephen of Hungary. *Mathias Cor-*
St. Elizabeth of Hungary. *[vinus*
Blanche of Castile.
St. Ferdinand III. ..... *Alfonso X.*
ST. LOUIS.

Eleventh Month

DESCARTES

MODERN PHILOSOPHY

tus Magnus. *John of Salisbury*
r Bacon ..... *Raymond Lully*
naventura ..... *Joachim*
... . *The Cardinal of Cusa*
igne ..... *Erasmus*
nella. ..... *Sir Thomas More*
THOMAS AQUINAS

es. ..... *Spinoza*
l. ..... *Giordano Bruno*
e. ..... *Malebranche*
narques. . *Mme de Lambert*
ot ..... *Duclos*
us. ..... *Georges Leroy*
NCIS BACON.

...
us. ..... *Cujas*
nelle. ..... *Maupertuis*
... . *Herder*
... . *Winckelmann*
squieu ..... *D'Aguesseau*
... . *Oken*
NIZ.

...
rlson ..... *Galilei*
e Smith ..... *Immanuel*
... . *Fichte*
rcet ..... *Ferguson*
h de Maistre ..... *Bonald*
l ..... *Schlegel*
lle. ..... *Germaine*

Twelfth Month

FREDERICK II.

MODERN STATESMANSHIP

Maria de Molina.
Cosmo de' Medici the Elder.
Philippe de Comines *Guicciar-*
Isabella of Castile. *[dini*
Charles V. ..... *Sixtus V.*
Henri IV.
LOUIS XI.

L'Hôpital.
Barneveldt.
Gustavus Adolphus.
De Witt.
Ruyter.
William III.
WILLIAM THE SILENT.

Nimenes.
Sully. ..... *Oxenstiern*
Mazarin ..... *Walpole*
Colbert ..... *Louis XIV.*
D'Aranda ..... *Pombal*
Turgot ..... *Campomanes*
RICHELIEU.

Algernon Sidney ... *Lambert*
Franklin ..... *Hampden*
Washington ..... *Kosciusko*
Jefferson ..... *Madison*
Bolivar ..... *Toussaint l'Ouverture*
Francia
CROMWELL.

Thirteenth Month

BICHAT

MODERN SCIENCE

Copernicus. ..... *Tycho Brahe*
Kepler. ..... *Halley*
Huyghens ..... *Varignon*
James Bernoulli ..... *John Bernoulli*
Bradley ..... *Roemer*
Volta ..... *Saussure*
GALILEO.

Vieta. ..... *Harriott*
Wallis ..... *Fermat*
Clairaut ..... *Poinsot*
Euler ..... *Monge*
D'Alembert. ..... *Daniel Bernoulli*
Lagrange ..... *Joseph Fourier*
NEWTON.

Bergman. ..... *Scheele*
Priestley. ..... *Davy*
Cavendish.
Guyton de Morveau ..... *Geoffroy*
Bertholdet
Berzelius ..... *Ritter*
LAVOISIER.

Harvey ..... *Charles Bell*
Boerhaave ..... *Stahl Haller*
Lamarck ..... *Broussais*
Broussais ..... *Magendie*
GALL

Day of ALL THE DEAD.

Day of EMINENT WOMEN.

Extra Day

Additional Day in Leap years

THE NEW CALENDAR OF GREAT MEN

THEOCRATIC CIVILISATION

AT the time when Greek civilisation began, the beliefs and habits prevailing on the Mediterranean coasts, no less than throughout Asia, may be spoken of as Theocratic. Those tendencies to attribute will and passion to inanimate things closely touching man's life, which we embody under the word Fetichism, had not indeed passed away. But they were overlaid by new beliefs which, by their power of binding men together, have exercised a potent influence on the life of nations. Fetichism was succeeded, though not uprooted, by Theism.

The powers inherent in sun or moon, in a tree, a mountain, a chieftain's tomb, or a sorcerer's charm, were transferred to invisible beings endowed with human feelings, who ruled supreme over certain classes of things or events, but were conceived of as separate from them. The forms taken by such beliefs varied infinitely with the environment and the aptitudes of different communities. All that deeply touched men's fears and sympathies came under divine guidance. Thus, in Greek mythology, there was a god of the earth, of the ocean, of the world, of the dead: of war, of metal-working, of music: and every well-known river, hill, and forest was haunted by its own deities. Sometimes, as in India, terrible diseases, as small-pox, were connected with a special god or goddess. In the graver mythology of Rome, a god was associated with each human institution. In the primitive nations of Palestine, a god reigned supreme over each tribe, identified with its existence, and limited to its boundary.

The social system built up on such beliefs is called Theocracy. It is the stage from which we may date civilisation properly so called; that is to say, the existence of large communities obeying a common law. In the early life of Asiatic as of European nations, we find it in full force; the systematised astrolatry of China presenting in some respects an exception. In America, it has been fully described by the chroniclers who accompanied the Spanish

conquerors. In Asia, it has held its ground persistently. In Western Europe it has gradually tended, by the series of transitions illustrated in this Calendar, towards the final state of Sociocracy, in which beliefs and institutions are moulded by the dominant conception of Humanity.

Conspicuous among the divine influences that moulded man's life were the powers clothed in human shape which gave him law and government. At first the king or hero is himself a god. Later generations are content to think of him as descended from a divine stock; in one shape or another the divinity of kingship has survived to recent centuries. In organised theocracies we find the monarch surrounded by a priestly caste, who, while recognising his divine origin, were themselves more specially concerned with interpreting the will of the gods. Ultimately the kingly and priestly powers become rivals, and the strife between them has been one of the most potent factors in historical change. But many centuries may pass before such rivalry issues in rupture; and meanwhile the priesthood controls the routine of life, extending the practice of caste to all industrial occupations; prescribing the details of religious cult, and studying the order of external nature, especially the revolutions of the heavenly bodies, so far as these appear to affect the course of human destiny.

From which of the great theocracies should a type be chosen to represent this phase of social evolution? Had the founders of Indian, Assyrian, or Egyptian civilisation been known to us, the choice would have lain between one of these. But the names of these men are lost, though their work remained. The reputed founder of Judaic theocracy, while recalling to us the Egyptian civilisation from which he issued, has left his deeds and words recorded in the Hebrew Bible. We have thus been made familiar from childhood with the conception of an organised priesthood offering sacrifice, prescribing ceremonial, and controlling the detail of human conduct. The Jewish theocracy of the six centuries preceding the Christian era stands out in startling contrast with the contemporary movements of Greek and Roman history. On these it exercised a special influence which modified for many centuries the course of Western civilisation.

It remains to indicate the general principle on which the names in this month have been arranged.

The first week is given to the incomplete Theocracies of Greece and Rome, arrested by the ascendancy of the temporal over the priestly power. The principal type is the priest-king of Rome, Numa.

The second week represents Polytheistic Theocracy—Chaldean, Persian, Assyrian, Indian, and Celtic. Buddha presides over the week, owing to his wider influences: though not in all ways the most characteristic type, since Buddhism was a revolt against Brahmanic theocracy.

The third week is appropriated to Astrolatry. The societies in the Far East, in Oceania, and in America, which based their religion on the worship of the heavenly bodies, were so far Theocratic that the temporal chiefs ruled by divine authority, but the theocratic institutions—an organised and hereditary priesthood and a division into castes—were rudimentary. In China, the greatest example, here represented by Confucius, these institutions are entirely absent.

The fourth week is devoted to Theocratic Monotheism: to that of Judæa principally, but also including Mohammedanism, which directly sprang from it. Mohammed is here the principal type.

[J. H. B.]

Pos. Pol. iii. ch. 3.

MOSES, 14th century B.C. (?)

The story of MOSES is told in the second of the books attributed to him, which recounts the Exodus, or Out-going, of Israel from Egypt. For many generations the Hebrew tribe had been settled in the north-east of that country, till their increase roused the jealousy of the government. A massacre of their infants was ordered. Withdrawn from this fate by a sister who placed him in an ark of bulrushes by the river's brink, the infant Moses was found by one of the king's daughters, who brought him up as her son, and taught him all the learning of the Egyptians. When grown to manhood, his heart was stirred at the oppression of his tribesmen, who were employed at forced labour in building treasure-cities for the king. After slaying an Egyptian whom he saw ill-treating a Hebrew, he took refuge with a priest of Midian, whose daughter he married. Here the visions came to him which ended in his banding his countrymen for escape from their oppressors into the desert.

Their flight was preceded and accompanied by many miraculous proofs of divine favour. From the mountains of Sinai the ten commandments were proclaimed by Jehovah amidst flame and thunder; and the service of the tabernacle, with all its elaborate details of ritual and ceremonial, was revealed to Moses, and punctually practised. On reaching the promised land of Canaan, the tribe was panic-struck at the tidings of the formidable foes who awaited them; and in punishment for their mistrust they were doomed to lead a wandering life in the desert for forty years, till the generation that left Egypt had passed away. At the end of this time Moses was an hundred and twenty years old: his eye was not dim, nor his natural force abated. He now delivered his last message of warning and farewell to his people; and then passed away from them unto the mountain of Nebo, to the top of Pisgah, that is over against Jericho. Here Jehovah showed him the whole range of the promised land, which he himself was not to enter; and here he died, but no man knew the place of his sepulchre. There arose no prophet since in Israel like unto Moses, whom the Lord knew face to face, in all

the signs and wonders which the Lord sent him to do in the land of Egypt to Pharaoh, and to all his servants, and to all his land, and in all the great terror which Moses wrought in the sight of all Israel.

So ends the chronicle. Among modern interpretations of it one has been that a member of the Egyptian priesthood headed a rebel tribe, welded it into a powerful nation, preached a monotheistic doctrine drawn from Egyptian sources, and selected from Egyptian law and ritual such ordinances as he thought suitable to the condition of his people. Confirmation of such a story from the Egyptian side is not wholly wanting. Josephus has preserved a fragment of Manetho, written in the third century B.C., telling of certain lepers and unclean persons who, under the guidance of a priest from Heliopolis, threw off the yoke of the Pharaoh. The name of this priest was Osarsiph ; he is said to have laid down laws opposed to Egyptian customs, to have allied himself with the enemies of Egypt, and to have been known afterwards by the name of Moses. The Pharaoh here spoken of would probably be Menephta, son of Ramesis II., who reigned about 1320 B.C.

It has been believed by some that the law thus given by the priestly deliverer to the outcast tribe was in the main identical with the elaborate system of rites and ceremonies presented in the books of Exodus and Leviticus. But recent interpretations of Egyptian and Assyrian records, and careful scrutiny of the Jewish chronicles themselves, have shown this belief to be untenable. From the *Book of the Dead*, buried in Egyptian tombs, we learn that the most prominent among the doctrines taught by the Egyptian priesthood was the life of the soul after death : a doctrine conspicuously absent from the teaching of Moses. Search, on the other hand, into the earliest inscriptions of Assyria shows such similarity in their legends with those preserved to us in the book of Genesis, that we can hardly err in tracing the Hebrew tribe to the valley of the Euphrates. Finally, the Old Testament itself, when impartially examined, shows that the growth of Jewish religion took place otherwise than the Jews themselves were afterwards taught to believe ; and justifies the keen foresight of the great Spinoza who, two centuries ago, declared his belief that the books attributed to Moses were written after the exile of the Jews to Babylon. A brief sketch of Jewish history as recast by scientific research is here subjoined.

In the records of the Hebrew tribe after the invasion of Canaan, preserved in the book of *Judges*, no trace is to be found of the elaborate system of priestly government said to have been organised by Moses during the forty years of pilgrimage in the deserts of Arabia. There was no central shrine corresponding to the tabernacle. Nor do we find any trace of so spiritual a worship and so pure a rule of life as that which the book of *Deuteronomy* attributes to Moses as his last legacy to his countrymen. For all that appears in the book of *Judges*, Moses might never have existed. The religion of

the tribe seems at this time to have been very similar to that of the other tribes around them. As the tribe of Moab had their god Chemosh, and the tribe of Ammon their god Molech, so the Hebrew tribe had their god Jahveh, worshipped under the semblance of a bull or calf, not in any central shrine, but in Dan, Shiloh, Bethel, Gibeon, and other places. The story of Micah (*Judges*, ch. xvii.) gives a vivid picture of the religious condition of the tribe in those times. At a later period we find Solomon, notwithstanding the highly spiritual language attributed to him at the dedication of the temple, building shrines at Jerusalem to Chemosh and Molech, which remained undisturbed till the religious reform of Hezekiah in the eighth century. Jeroboam worshipped Jahveh, under the semblance of a bull, in Dan and Bethel. The adoration of the Asherah, analogous to the phallic worship, was widely diffused, as was the star worship of Egypt and Phœnicia.

Not till the close of the ninth century do we find unmistakable proof of the transformation of the rude tribal cult into a religion appealing to the heart and conscience of men, in which Jahveh became the impersonation of that conscience, the god of righteousness. The change began amongst individual members of the associations of bards and soothsayers known to us as schools, or guilds, of prophets. Precisely to date it is impossible ; for the utterances of these men were not committed to writing till the time of Amos, Hosea, Micah, and the first Isaiah. We find them filled with fiery protests against the ceremonial and the sacrifices offered to the tribal god, and with assurances that Jahveh cared only for justice and mercy. Frequent reference is made to the ancient traditions of the tribe, their deliverance from Egyptian bondage and settlement in Canaan : and these traditions were now set down in writing coloured by the new spirit of the time. In the reign of Hezekiah, the first attempt was made to organise the purer worship : an attempt renewed and finally consummated under Josiah. The book of the law produced under this king by Hilkiah contained probably the substance of what we now know as *Deuteronomy*. The elaborate ceremonial described in *Exodus* and *Leviticus* was worked out during the Exile, and during the century that followed the restoration to Palestine ; the prophet Ezekiel, and subsequently Ezra, taking a chief part in these memorable constructions.

From the time of Ezra to the final siege of Jerusalem, the Judaic theocracy was fully established. It was supported by the Persian monarchy : it was nobly maintained by the Maccabees against the polytheistic onslaughts of Antiochus Epiphanes ; a struggle to which many of the psalms have reference. The amalgamation of spiritual and temporal power was complete : the High Priest was in every respect a king : and even when Rome had established the dynasty of the Herods, the power of the priestly hierarchy was but slightly fettered. The temple worship and the detailed organisation of life set forth in the Pentateuch were now in full force. With

what enthusiasm they were accepted, the *Psalms*, attributed to David, but mostly written at this time, suffice to tell.

Thus, much that has been hitherto attributed to Moses is in reality the creation of a later time. But the story of the deliverance of his tribe under his guidance from Egyptian bondage, handed down by tradition from the fourteenth century till it could be committed to writing in the ninth, is too distinct and unvarying to admit of denial. Though he did not build up the fabric of Jewish theocracy, it is probable that he conveyed to his countrymen, in the *Ten Words* or otherwise, the rudiments of the moral law, upheld in his time with perfect clearness by the Egyptian priesthood. In the evolution therefore of the Hebrew nation, destined to wield such potent influence over the history of humanity, Moses stands out as the principal founder. [J. H. B.]

Article MOSES, *Encycl. Brit.* For the Old Testament and the general history of Jewish Religion: Kuenen, *Religion of Israel*; E. Renan, *Histoire d' Israel*; W. Robertson Smith, *The Religion of the Semites* and *The Prophets of Israel* (2nd. ed. by Cheyne, 1902). *Pos. Pol.* iii. 202-205. *Early Essays*, p. 256.

PROMETHEUS

All the names in the first week of the Calendar stand for very legendary persons. PROMETHEUS meant to the Greeks "the foreseeing one," and he was connected in their myth with a brother "Epimetheus," the man of "afterthought" who was always going wrong. An ingenious modern derivation has referred the name to a Sanskrit word *Pramantha*, the "fire-stick" of the Hindus, which was afterwards confused with another word meaning a robber; and hence, say these philologists, arose all the legend of stealing fire which is the most cherished achievement of Prometheus.

However this may be, he stands here as representative of those men, on the threshold of Greek civilisation, who broke away from the earlier theocratic *régime* and led their people to the freedom of thought, independence and activity which characterise the later Greeks.

Prometheus in the story was a demigod, one of the Titans opposed to the hierarchy of superior deities of which Zeus was the head. Prometheus, moved by benevolence and compassion for mankind, taught them many of the arts of life, and in particular the use of fire, which, in despite of Zeus, he stole from Olympus in a fennel-stalk. As a punishment for this offence, he was chained by Zeus upon a rocky mountain in the Caucasus and tortured daily by a vulture. After many years of suffering he was released by Herakles, another culture-hero, or demigod of progress. The story is the subject of the greatest drama of Æschylus, who describes the sufferings and constancy of the hero under punishment. Shelley treats the unbinding of Prometheus as the triumph of Humanity and the advent of an ideal State. [F. S. M.]

Hesiod: *Theogony*. Æschylus: *Prometheus*. Grote: *History of Greece*, vol. i. ch. iii. J. B. Bury: *History of Greece*. E. B. Tylor: *Early History of Man*. *Pos. Pol.* iii. 208.

CADMUS

CADMUS was a culture-hero whose name probably covers the doings, real or mythical, of more than one person. He was primarily the tutelary hero of the town of Thebes and on to this stock was afterwards grafted the exploits and inventions of a supposed Phœnician immigrant. The most important definite fact connected with his name is that he was the means of introducing to Greece the Phœnician characters from which the Greek alphabet was derived. The alphabet (*i.e.* symbols which conventionally represent to the eye the sound heard in human speech) is traced back to the *hieratic* writing of the Egyptian priests, itself a development of the *hieroglyphic* system. The Phœnicians modified the hieratic alphabet, and carried it over Europe. It was the indispensable condition of progress, and the basis of Western civilisation. The name is Greek, but he stands here rather for the influence exercised by Phœnician civilisation on the childhood of Greece, not only as a literary force, but as a stimulus to art, industry, and maritime enterprise. He is treated as the inventor of the arts of mining, working in metals, and the worship of Dionysus, that is, the use of wine. Although some authorities regard Cadmus as a native Pelasgic hero, the better opinion is that he represents the influence of the Phœnicians on Greek civilisation, through Crete and the southern islands.

We may connect with his name now the whole of that culture which came to Greece from Crete and the southern islands, as well as Phœnicia, and for which no other figure is to be found in this Calendar. [F. S. M.]

Curtius : *History of Greece*, bk. i. ch. iii. Grote : *History of Greece*, vol. i. ch. xiv. Sayce : *Ancient Empires of the East* (ch. iii., "The Phœnicians"). For the Alphabet and its history, Fr. Lenormant : *The Phœnician Alphabet*. For Crete, J. Baikie : *The Sea-Kings of Crete*.

HERCULES

Hercules is the Latinised form of the name of the national hero of the Greeks : HERAKLES. He was supposed to have connections both with the Dorians, the Athenians, and the Thebans ; but all agreed in assigning him a divine origin, as son of Zeus. Like Prometheus, he is represented as opposed to some at least of the superior deities : to Hera (Juno) and Apollo. Like Prometheus, too, all his labours and sufferings were undergone in the service of man. The famous "twelve labours of Hercules" are all connected in different ways with the progress of civilisation. In one aspect, as connected with the voyage of the Argonauts, he appears as a pioneer of Greek maritime enterprise. It seems clear that Herakles is a Greek form of the Tyrian sun-god, Melkarth ; and that the worship of Herakles at Corinth and elsewhere, the Pillars of Herakles, and perhaps the numerous Heracleias, ports on the sea-coast, represent traces of Phœnician enterprise and navigation. In connection with

athletic contests, he was one of the founders of that form of union among the Greeks which did much to preserve their national coherence. In many of his exploits he figures as the benefactor of agriculture; reclaiming marshy ground, and exterminating noxious animals. And as the god of strength, and taking part in the first siege of Troy, he became the national champion in war as well as in peace. How much of the legend belongs to a fetichistic sun-myth, how much to any historical person, it is impossible to decide.

[F. S. M.]

Grote: *History of Greece*, vol. i. ch. iv. Curtius: *History of Greece*, bk. i. ch. ii. Sayce: *Ancient Empires of the East* (ch. iii., "The Phœnicians").

THESEUS

THESEUS is the hero of Athens, as Cadmus of Thebes. While descended on his father's side from the oldest Athenian heroes, Ægeus and Erechtheus, he was supposed on his mother's side to have introduced a foreign element into the city from Troezen, in the Peloponnesus. This story no doubt arose from the mixture of a tribe from Ionia with the earlier Attic settlers for whom Ægeus and Erechtheus stood. The connection of Theseus with Poseidon, the sea-god, the rival with Athena in the mythical foundation of Athens, points in the same direction; for Poseidon was the great Ionian god. In Theseus, as in Cadmus, we can clearly distinguish the mythical from the historical element. On the one hand, he is described as a knight-errant and slayer of monsters in the manner of Hercules; on the other, he is credited with the historical operation of creating the city of Athens out of the small disconnected villages which stood round its site (the συνοικισμός). It is as the reputed author of this important change, and as founder of the Isthmian Games, that he owed the position he held in the minds of the Athenians.

[F. S. M.]

Plutarch: *Life of Theseus*. Grote: *History of Greece*, vol. i. ch. xi.

ORPHEUS

The name of ORPHEUS stands in Greek legend both for "the Father of song" and for the founder of a religious school with mystic rites and a rule of life something like that of the Pythagoreans. In the first character he was supposed to have been a Thracian, and, though his name does not appear in either Homer or Hesiod, from the sixth century B.C. he was reputed as one of the chief musicians, the inventor of the lyre, able by his music to charm both men and beasts and even to draw trees, rocks and rivers from their place. Masses of poetry were current in the name of Orpheus which Aristotle declares to belong to later times and very little remains which can be ascribed to an early date. But he has lived long in the beautiful

story retold by Ovid and immortalized by Gluck in his opera of "Orpheus and Eurydice." Eurydice was his wife, killed by the bite of a serpent. He went down to the underworld to rescue her, and softened the heart of Pluto by his music. But, as they left, he was to walk in front of her and not to look back until they reached the upperworld again. As he could not refrain from this in his anxiety, she vanished from his sight.

In the character of culture-hero, he taught mankind many arts, including medicine and agriculture, and it was no doubt in this character mainly that he became a religious founder. His rites or "mysteries" were connected with the worship of Dionysus, or Bacchus, and also included speculation as to the nature of the gods and of the soul. Like the Pythagoreans his adepts were distinguished by various forms of abstinence—from flesh and beans, etc.—and aimed at purifying the soul for another and a higher life.

[F. S. M.]

Grote: *History of Greece*, vol. i. ch. i. Müller: *Literature of Ancient Greece*.

TIRESIAS

TEIRESIAS is the great type of another important class in primitive Greece—the inspired soothsayers. He was closely bound up with the legendary history of Thebes, and enjoyed the distinction—exceptional among Greek heroes—of a miraculously long life: he was said to have lived through eight generations of ordinary men. Throughout his life he gave advice, and made predictions with regard to the public events which were passing in his native city. One instance of this intervention is immortalised by Sophocles in *Œdipus the King*, where he warns the fated Œdipus of his past crimes and coming punishment. In the *Odyssey*, Homer distinguishes Tiresias as the only spirit in the lower world who was allowed to retain his intelligence after death. Tiresias belonged to the same class of counsellors, forming a spiritual power to the temporal rulers, as did the prophets in the Hebrew monarchy. [F. S. M.]

ULYSSES

Ulysses is the Latinised form of ODUSSEUS, the hero of the second great Homeric poem. His character is entirely created by the poet and has a double interest for us; personally as a type of Greek character, socially as a type both of the early tribal chieftain and of the maritime pioneer.

As a type of the Greek character we notice his unwillingness to go to the war at Troy in the first instance: he does not share the delight in fighting which marks the other leaders of the Trojan War, who present a more primitive type. He delights in speech,

argument, and cunning. He has a strong attachment to his home at Ithaca and to all its associations. He longs to see his wife again, and to live and rule in peace.

As tribal chieftain we see him enjoying absolute and undisputed authority in a small domain; deriving his power originally from birth, but to a great extent also from personal superiority. But the more characteristic and, to the Greek mind, the more fascinating side of the story was that which described the maritime adventures of Odysseus. These take us back to the time when the Greeks first penetrated to the Black Sea on the East, and the Pillars of Hercules on the West. The wanderings which Odysseus unwillingly goes through on his return from Troy represent, in the disguise of fable, the journeys undertaken by Greek sailors for adventure and for trade, when Greece began to compete with Phœnicia for the supremacy of the sea. [F. S. M.]

Homer: *Odyssey*. Grote: *History of Greece*, vol. ii. ch. xx.

LYCURGUS

Of all the types selected by Comte to represent the theocratic stage in the development of Greek and Roman civilisation, LYCURGUS has most claim to be considered a historical person. The traditional account of him, according to which he created the constitution and institutions of Sparta and imposed them upon the people, cannot be accepted; but there is no ground for doubting that he effected great changes in the Spartan State and derived his authority from the Delphic oracle, with which the Dorians had a close connection. What his measures were we cannot determine; but we may conclude that they were concerned with the strengthening of those features in the Spartan constitution which were most characteristic and most durable. These were—(1) A combination of the different forms of government according to which the kings, the senate, and the assembly of the Spartans and the ephors who represented them, divided the government among them. (2) The subjection of the serfs and the non-Spartan members of the community—the Perioeci. These were a constant menace to the State, and Lycurgus seemed to have secured their subjection and the domi ance of the military class by some measures of land reform. (3) The strict military training to which both male and female Spartans were subjected, and to which Sparta owed its temporary strength.

Lycurgus was "the founder of a warlike brotherhood rather than the lawgiver of a political community" (Grote). Our chief authorities for his life and work are Herodotus and Plutarch, but great doubts attach to all the particular facts. His date has been given variously from the 10th to the 7th century B.C.—the tradition leaning to the 9th. [F. S. M.]

Plutarch: *Life of Lycurgus*. Grote: *History of Greece*, vol. ii. ch. vi. Curtius: *History of Greece*, bk. ii. ch. i. J. B. Bury: *History of Greece*.

ROMULUS

ROMULUS belongs to the purely legendary and eponymous order of heroes. Like the great Hercules, he was supposed to have been of divine birth ; Mars, his reputed father, indicates the conquering spirit which the Romans felt to be the genius of their race. His name, like that of his brother Remus, was coined from that of the city which he was said to have founded, of which he was the tutelary deity.

To his earlier occupation as a shepherd, we see the primitive state of the Roman tribe before their special development began. In the story of his wars with the Sabines and their final settlement in Rome, we may see some trace of an early amalgamation of the two tribes. And his association as king with Tatius, the Sabine, is a precedent for the double consulship of the republic.

Romulus was worshipped at Rome as another form of Mars, under the name of Quirinus ; and his name is important only as a recognition by the Roman people of the true nature and destiny of their state. [F. S. M.]

For the mythical story of Romulus, refer to Plutarch : *Life of Romulus* ; and to Livy : bk. i. 3-16. For the origin of Rome, refer to Mommsen : *History of Rome*, bk. i. ch. iv.

NUMA

NUMA is the most important name in the week of Greek and Roman heroic founders ; not because of his personal greatness or his more historical character, but because he is the most perfect instance of the way in which all the institutions of the State, both civil and religious, were referred to a divine origin. Personally, he is probably entirely fabulous : even his name is supposed to have been coined as a short epitome of his functions.

In his supposed origin, as a Sabine, we see a trace of the same tribal amalgamation which appears in the legend of Romulus. His name was connected with most of the institutions of Rome ; but more especially with the social and religious organisation. To him, as to Lycurgus, is referred the settlement of the land : which was understood to be a fundamental fact in nearly all historical legend. Connected with the same question, is his institution of the worship of *Terminus*, the god of landmarks and boundaries, and of the still more important social deity *Fides*, the goddess of good faith. To him the institution and arrangements of the Calendar was assigned, which remained unaltered till the reformation of Julius Cæsar. In the religious sphere all the sacred functions and functionaries were derived from Numa's institution. The Pontifices, the Vestal priestesses, and the Flamens of the various deities, were all due to him.

But the most significant feature in the story is that all his laws were said to have been inspired by a divine suggestion. Numa,

we are told, held constant converse with a nymph, Egeria ; and from her promptings his institutions and laws took their rise. The story is much more bald than the legends of the Greeks, and offers us no imaginative and poetic beauties ; but it presents the primitive theory of society and government with Roman simplicity and directness of thought. [F. S. M.]

For the mythical accounts of Numa, refer to Plutarch : *Life of Numa* ; Livy, bk. i. 18-21 ; Niebühr : *History of Rome*, vol. i. For the religion of Rome, refer to Mommsen : *History of Rome*, bk. i. ch. xii. ; J. B. Carter : *The Religion of Numa* ; *The Religious Life of Ancient Rome.*

BELUS

The natural irrigation of the Euphrates valley rendered the transition easy from the nomad to the sedentary state. Then, favoured by the vast plains and the recurrence of the rising of the waters at the same seasons, there arose throughout Chaldea a system of star-worship, or Astrolatry, a stage between Fetichism and Polytheism. But soon the inaccessibility and regularity of the stars, which removed them from the control of ordinary men, led to the formation of a priesthood ; and this in its turn, brought the observation of the heavens to great perfection.

Babylon was one of the earliest centres of trade and civilisation. The increase and control of irrigation gave scope to her engineers, while her wealth fostered all the decorative arts. Employments were as a rule hereditary, the family being the only school for teaching the mystery of each handicraft, but there was no system of caste.

We owe to Babylon the institution of the week, and the division of the circle into degrees, minutes, and seconds, in accordance with the Babylonian system of notation—the former having come down to us through the Jews, and the latter through the Phœnicians. BEL was one of the twelve Lords of the Sky, to each of whom was dedicated a sign of the zodiac, and a month of the year ; but by the name Bel, "Lord," the others were also invoked. (*Cf.* Phœnician *Baal.*) [S. H. S.]

Herodotus, bk. i. 178-183. Duncker : *Hist. of Antiquity*, bk. ii. A. H. Sayce : *Ancient Empires of the East*, ch. ii. T. G. Pinches : *The Religion of Babylon and Assyria.* Comte (on Astrolatry) : *Pol. Pos.* iii. 94-97.

SEMIRAMIS

Astrolatry might become military under favourable circumstances (*Pos. Pol.* iv. 127). A Semitic people, closely allied to the Babylonians, settled high up the Tigris, and became inured to battle by centuries of conflict with the neighbouring mountain tribes. The warlike habits thus formed enabled the Assyrians ultimately to overcome Babylon and extend their empire from Egypt to Bactria. They thus took the first steps towards the union of Western Asia, afterwards perfected by Cyrus, and destined to so great an influence on European civilisation. But the Assyrians showed no skill in

consolidating their empire : sometimes they removed great numbers of the conquered to distant parts, as happened to the Israelites ; more often, after using their victories with great cruelty, they would leave the government in the hands of the native princes, so that, harassed by continual revolts, their dominion was little more than an occasional raid for the collection of tribute. Their power declined with unusual rapidity, and passed to their revolted subjects, the Medes and Babylonians.

In all other respects Assyrian civilisation was the same as Babylonian, though possibly, to judge by the remains of Nineveh, superior in art. The Queen SEMIRAMIS is entirely mythical, but significant as a type, being renowned both in war and peace, as conqueror and engineer. The original of the name is *Shammuramat*, meaning Dove, and is a personification of the goddess of war and that of beauty. She was believed to have been the wife of Ninus, the divine founder of the Assyrian Theocracy, and was herself the deified promoter of his work in war and peace.

[S. H. S.]

Duncker : *Hist. of Antiquity*, bk. iii. A. H. Sayce : *Ancient Empires of the East*, ch. ii. T. G. Pinches : *The Religion of Babylon and Assyria*. G. Maspero : *Life in Ancient Egypt and Assyria* (Eng. trans.).

SESOSTRIS

The system of government known as Theocracy is, in its most complete form, one in which the whole life of man is regulated by the commands of the gods, as expounded by a hereditary priesthood ; and in which the duties thus sanctioned are enforced by law, and rendered habitual by the hereditary descent of all functions. In such a government spiritual and temporal authorities rest on the same basis. Religion, morality, and law are not distinguished. The priests expound the law ; the king enforces it ; the priests sit in the courts of justice ; the king holds his power as the minister and vicegerent of the gods. J. S. Mill therefore is entirely mistaken in assuming (*Auguste Comte and Positivism*, p. 109) that Comte would limit *Theocracy* to a society in which the ruler is a member of the priestly caste, strictly so called. As the Calendar shows, he includes under the Theocrats the kings of Greece and Rome, Persia and Egypt, Mahomet and the khalifs. A theocracy, as here understood, means a society in which the social organisation, temporal and spiritual, rests upon a common basis of divine sanction, the hereditary transmission of all functions being more or less completely developed. To Theocracy we owe the first organisation of industry, and the first accumulations of knowledge ; but the task of regulating society gave a practical turn to the knowledge of the priests, making them "know in order to improve" (*Pos. Pol.* iv. 11). Essentially conservative, the system was well suited to consecrate a life of labour, and foster the rude beginnings of industrial skill. Alone of theological systems it comprised the whole circle of human

life, and therefore had Theologism been destined to endure, it would have been in this form (*Pos. Pol.* ii. 87). Its first germs may be seen in the priesthoods of Astrolatry (Belus), and its extreme type in India (Menu); but the Theocracy which has had the greatest effect on Western civilisation is that of Egypt.

The narrow valley of the Nile, fertilised by the overflow of the river, and easily defensible, was perhaps the earliest seat of settled life and industry. Here many thousand years ago there arose a rich and enduring Theocratic civilisation. Like all the greatest Theocracies, it was Polytheistic, but with strong traces of primitive Fetichism (see introduction, above), the worship of ancestors, of animals, and of the heavens, though Astrolatry had not the same permanence as it had on the great plains of Babylon. The caste system was far less rigid than in India—intermarriage and adoption from one caste to another were not prohibited; but the inscriptions tell us of the same office remaining in one family for twenty-three generations. The strong feeling of continuity found expression in enduring monuments, and led to a belief in immortality; and the liturgy of the dead, placed with each corpse, and the splendid tombs erected by the kings, have preserved for us the life and thought of the Egyptians.

The old monarchy had its seat first at Memphis, then at Thebes. It was overthrown by nomads of the desert, and for some five centuries Egypt was ruled by the Shepherd Kings, who were expelled about 1650 B.C. Of the more warlike dynasties which followed, the greatest was the house of Ramesis. Sethos I. conquered Nubia, and fought against the princes of the Euphrates; and his son Ramesis II. (d. about 1322) left his image on the rocks of Phœnicia. Their deeds, greatly exaggerated, have furnished the SESOSTRIS of the Greeks. They both left many great works as memorials: Sethos built the great hall at Karnac, the most splendid monument of Egyptian art; Ramesis enlarged the temple at Luxor, and set up the obelisks, one of which is now in Paris. Menephta, the son of Ramesis, was the Pharaoh of the Hebrew *Exodus* (ch. iv.-xiv.). As in all Theocracies, the power of the king was absolute; he was the representative of the gods, and in Egypt was himself worshipped as a god. The power of the priests was exerted by the force of the traditions which they expounded, a force which weighed as heavily on the king as on the poorest subject. It was a sign of the decay of the Theocracy when, for a short time after the fall of the house of Ramesis, the High Priests of Thebes made themselves rulers in the land. Hidden under the common designation of the priestly colleges, the very names of the great priests have passed away, and a great king stands as the type of the Egyptian Theocracy.

[S. H. S.]

Duncker: *Hist of Antiquity*, bk. i. Herodotus, bk. ii. translation by G. Rawlinson, vol. ii., and app. viii. by Sir J. G. Wilkinson. A. H. Sayce: *Ancient Empires of the East*, ch. i. W. M. Flinders Petrie: *The Religion of Ancient Egypt*. G. Maspero: *Life in Ancient Egypt and Assyria* (Eng. trans.). For Theocracy, see *Pos. Pol.* iii. 170-210.

MENU

The Aryans, after they had conquered the valley of the Indus, were still a military people. But when they had spread to the rich valley of the Ganges, and the period of conquest was at an end, everything favoured the rise of a Theocracy, which here reached its most perfect type—resting on the acknowledged supremacy of the priests, and a rigid system of caste without intermarriage or adoption. The whole people was divided into four great castes, ultimately subdivided: the Brahmans, or priests; the Kshatryas, or warriors, of whom the King was always one; the Vaicyas, farmers, traders, craftsmen; and the Sudras, or labourers. No one could pass into a caste higher than that of his birth. Intermarriage was strictly forbidden; those who transgressed the rule lost their own caste, and their children became members of impure castes to which disreputable functions were assigned. Among the functions of the Brahmans were teaching, sacrificing, giving a consecration to family festivals, and reciting the sacred poems to the men of their villages; they also held many posts of civil administration. Besides adherence to the duties and customs of his caste, which became more onerous the higher it was, each had his duties to his ancestors and his family. He could even be expelled from his caste by the displeasure of his kinsmen.

The Aryans were already Polytheists when they descended from the mountains into India, and had passed from Fetichism to Polytheism, with no period of systematic Astrolatry between: hence their unbridled imagination, and little power of scientific observation, despite their skill in reasoning. Settled on the Ganges, the priests, to consecrate the system of castes and their own precedence, made Brahma the chief god. From him the world had emanated, and they themselves the first of men, the earliest emanations being the purest. A Brahman, if pure, could return to Brahma after death, but all others had to go through a series of transformations, determined by their conduct, until their purification was complete. The changes of life and religion are well seen in comparing the sacred books of India. The Vedas, composed on the Indus, show strong traces of Fetichism. In the great epic, the *Mahabharata*, which deals with the wars among the princes after the conquests on the Ganges, the military spirit still prevails. But in the Books of the Law we find the regulations of a society essentially peaceful, conservative, and Theocratic. The first and chief of these books is attributed by its authors to MENU, the primeval and divine ancestor of their race; but under that name we may honour rather the great Brahmans who drew up the Books of the Law, and organised the enduring civilisation of India. [S. H. S.]

P. Lafitte: *Grands Types de l'Humanité*: *Manou*. Duncker: *Hist. of Antiquity*, bk. v. Vincent Smith: *Early History of India*. For the Code of Menu, see Manning: *Ancient and Mediæval India*, ch. xv. Eng. trans. of the *Mahabharata* and the *Ramayana*, somewhat abbreviated, have been made by Romesh Chunder Dutt.

CYRUS, b. 599 B.C., d. 529 B.C.

In the mountain valleys of south-western Iran dwelt the hardy and warlike tribes of the Persians. Among them the priesthood had less power than among the Medes; in fact, Persian Theocracy was "more impaired than any other by the final preponderance of warriors over priests" (*Pos. Pol.* iii. 231). But however great was this preponderance, under Polytheism the Theocratic peoples never became really military (*Pos. Pol.* iii. 206). The nations of the West, among whom the warriors attained supremacy before the rise of Theocratic habits, were always far superior in war, as was shown by the victories of the Greeks over the vast armies of Darius and Xerxes.

The power of Persia began with Achæmenes, chief of one of the seven Persian tribes, who induced the other six to acknowledge his leadership; and, as a dependent ally, assisted the Medes in the final overthrow of Assyria. His grandson CYRUS revolted from the Medes, and conquered their country (558). Attacked by Crœsus, king of Lydia, he defeated him, took Sardis (549), and made himself master of the Greek cities in Asia. Finally, he conquered Babylon (538), as well as Phœnicia and the rest of Syria, which had fallen to the Babylonians on the overthrow of Assyria. Unlike that of the Assyrians, his empire was well organised and durable. Order was kept by Persian garrisons, while national and religious customs were respected. The subject provinces fixed their own subsidies: the Persians, as the conquering race, remained untaxed. The conquered princes were treated with great clemency, but were removed from their old dominions to distant parts of the empire. By thus bringing all the nations from the Mediterranean to the Indus under one rule, Cyrus prepared the way for the conflict between East and West, with its great quickening of the life of Greece, for the conquests of Alexander and of Rome, and for the rise of Christianity. He also helped this by allowing the Jews to return to Jerusalem and begin rebuilding the Temple. To the Greeks, Cyrus was a type of the wise and humane monarch, the true father of his people. Plato compares him to Lycurgus, and Cicero calls him the most just, wise, and amiable of rulers. [S. H. S.]

Duncker: *Hist. of Antiquity*, bk. viii. Herodotus: bk. i., *passim*; bk. iii. 89; and translation by G. Rawlinson, vol. i. app. viii. Heeren: *Manual of Ancient History*, bk. ii. A. H. Sayce: *Ancient Empires of the East*, ch. v.

ZOROASTER

Sprung from the same stock, the primitive religion of the Aryans of Eastern Iran was similar to that of the Aryans of the Indus; but both underwent great changes. On the Ganges there grew up the perfect type of Theocracy (see MENU above). In Iran, a country of mountain, desert, and fertile valley, of striking contrasts,

and of fierce struggles with a sterile environment, there arose the conception of two opposing principles in Nature, the good and the evil, the pure and the impure, Oromasdes and Arimanes, the god of life and the god of death. Every good action helped the one, every evil action the other : the soul of every man, the soil of every field, were scenes of never-ending battle. Those who touched what was impure gave Arimanes the more power over them. In the Avesta, the Zoroastrian Bible, of which out of twenty-one books but one and some fragments remain, a minute system of purification is given, and long lists of things, pure and impure. The old gods remained as the children of Oromasdes, with legions of spirits, good and evil. The still older Fetichism survived in the reverence paid to fire, which was accounted especially pure.

This reformation is attributed to ZOROASTER [the name is said to be Aryan : *Zarathrustra* = Golden Star], but its date is uncertain. He is thought to have lived in Bactria, whence his doctrines spread to Media and Persia. The caste system was never fully established in Iran, though there was a hereditary priesthood, the Magi of the Medes. The religion of Zoroaster, through the Manichæan heresy, had great influence on Christianity. It endured in Persia till the Mohammedan conquest, and is still professed by the Parsees of India. [S. H. S.]

Duncker : *Hist of Antiquity*, bk. vii. Herodotus, bk. i., translated by G. Rawlinson's app. v. A. H. Sayce : *Ancient Empires of the East*, ch. v. Dr. S. A. Kapadia : *The Teaching of Zoroaster* (The Wisdom of the East Series) ; *The Zend Avesta*, trans. by J. Darmesteter (Sacred Books of the East, vols. iv. and xxiii.).

THE DRUIDS

In the West there were no great valleys like those of the Nile and the Euphrates to tempt men to a life of settled industry. Civilisation arose much later, and took a military rather than a Theocratic form. In Greece and Rome, the priests early became subordinate to the warriors, but in Gaul, at the time of Cæsar's campaigns, the priesthood still maintained its supremacy, though no other characteristic of Theocracy was present. According to Cæsar, the Druids were both sacrificers and judges, enforcing their decrees by excommunication and outlawry. Human sacrifices, mostly criminals or captives in war, were offered at their altars. Once a year a great meeting was held, to which men came from all parts to be judged. The Druids were exempted from taxes and military service. They were presided over by a chief, whose election often led to fierce contests : nor did they constitute a caste, numbers of youths being sent to them to be trained and instructed in their mysteries ; for, though acquainted with the use of letters, they preferred to commit their learning to memory. But it is possible that in the time of Cæsar the institution was already decaying ; and the military life around, which required in the warrior chiefs men strong, brave, ready of resource, and of full age, was unfavourable to the hereditary

principle. According to Tacitus, Tiberius suppressed the Druids in Gaul because of their human sacrifices, forbidding the exercise of their religion, and destroying their sacred groves ; yet they were found in the time of Vespasian prophesying the dissolution of the empire. They were still stronger in Britain. When the Romans attacked the Isle of Mona (Anglesey), their chief seat, the Druids were seen encouraging the defenders, and pouring forth imprecations with hands lifted to heaven. The Druids, as the upholders, in however rude a way, of religion, justice, and civil order, took the first step in fitting the Celtic nations for their great future ; for the Celts, disciplined by Rome, and strengthened by union with Saxons, Franks, and Northmen, were destined to be among the foremost leaders of Humanity. [S. H. S.]

Cæsar : *Gallic War*, vi. 13-16. Tacitus : *History*, iv. 54 ; *Annals*, xiv. 30. B. L. Henri Martin : *Histoire de France*, bk. ii.

OSSIAN

Owing to its remote and isolated position, Ireland long enjoyed greater tranquillity and security from invasion than the other countries of Western Europe ; but, as there were no border kingdoms able to grow strong in fighting foreign enemies, the political unity of the country was long delayed and social progress was slow. On the other hand, the energies of a people still in the military stage could find here no outlet in a career of conquest. As in Greece, this situation was favourable to intellectual development which the comparative tranquillity of the country also fostered—a result seen both in Pagan times and after the coming of St. Patrick. In Ireland, as in Gaul, there existed beside the Druids a body of soothsayers or magicians, the Filid, who eventually became story-tellers, poets, and judges ; and in Ireland they attained a position of greater honour and influence than elsewhere. They were divided into ten classes, of which the lowest knew only seven stories, and the highest three-hundred-and-fifty. These latter ranked with nobles of the second degree. Unlike the Druids, they seem to have experienced no hostility from the Christian Church.

The early poetry of Ireland is divided into two cycles, the Ulster and the Leinster-Munster. In the former the chief place is held by the great epic, the Táin Bó Cooley (The Cattle Raid of Cooley)—in prose with verses interspersed—telling of the war waged by the Queen of Connaught against Conchobar, King of Ulster, and of the prowess of the youthful Cuchullin, his foremost warrior The deeds of King and hero are the main subjects of the cycle. The second cycle, later and inferior, recounts the glories of Finn MacCool and his comrades, foremost among whom is his heroic son, OSSIAN, warrior and poet, the best known name in early Irish story at the time Comte drew up the Calendar. The poems relate that after many victories the band were almost all slain at the battle of Gabra ;

but Ossian and another escaped and lived to become the friends and companions of St. Patrick. Ossian, however, is also represented as extolling the old Pagan life. When the Filid proper became extinct, their place was filled, especially from the thirteenth to the sixteenth century, by the Bards attached to the houses of the Chieftains. These the Tudor Government tried to suppress.

Humanity has grown strong, not by the cultivation of one dominant type, but by all the nations of the earth bringing their various contributions to the common heritage of mankind ; and those are well worthy of remembrance who have kept alive the courage and endurance of the struggling and the oppressed. [S. H. S.]

E. Hull : *Text Book of Irish Literature.* A. Nutt : *Cuchulin, the Irish Achilles* ; *Ossian and the Ossianic Literature. Encyc. Brit.* Art. CELT (Irish Literature). J. W. Joyce : *A Social History of Ireland.* L. W. Faraday : *The Cattle-Raid of Cualnge.* M. A. Hutton : *The Tain* : *An Irish Epic told in English Verse.*

BUDDHA

BUDDHA, son of the rāja of the Sakya clan, SIDDHARTHA GAUTAMA, was born at Kapilavastu (near Oudh), about B.C. 480. The dates of his birth and death are given by Sir M. Monier-Williams as 500 B.C. and 420 B.C. The old date of his death, 543 B.C., is now given up by all recent authorities. At nineteen he married a neighbouring princess, his cousin, who ten years later bore him a son. This event, so far from binding him closer to the world, clinched his long-wavering purpose of becoming an ascetic ; for he had early felt that life is vanity and full of suffering, and he yearned to deliver men from the illusions and misery that encompassed them. Full of this intense sympathy and high resolve, he secretly stole away, renouncing rank, wealth, and family joys, and betook himself to the pursuit of philosophy and religion. In the seclusion of the jungle near Buddha Gaya, for six years he studied under two learned Brahmans the tenets of Hindu ontology and ethics, practising the severe penances by which devotees were believed to acquire superhuman wisdom and powers. Then, convinced of the futility of such exercises, and still keenly sensible of the fleeting unreality of all existence, he was seized with a temptation to return to his home and worldly affairs. Throughout a whole day he remained under a Bo tree (*ficus religiosa*), wrestling with despair and doubt ; but at last the light of hope and certainty broke in upon him, as he perceived that in self-conquest and universal loving-kindness lay the true path of salvation from suffering. That instant he consciously became Buddha, *i.e.* enlightened.

Then, in his thirty-sixth year, he began at Benares publicly to teach his doctrine. Regardless of caste, he preached to high and low alike, enrolling his best disciples into a monastic order, or society of mendicants, distinct from the larger body of lay adherents or householders. For forty-four years he travelled unwearied throughout the region of the Mid-Ganges valley, dependent

for his subsistence on alms, exhorting, instructing, and counselling all who cared to listen. He died peacefully at Kusinagara, eighty miles east of his birthplace, about B.C. 400, in his eighty-first year.

His disciples, well trained and organised, zealously continued his work. The doctrine and rules of discipline were settled in general councils; the first, held soon after his death; the second, about a century later; the third and most important, about B.C. 250, in the reign of Asoka. This monarch, the Constantine of Buddhism, sent out missionaries in all directions. His own son, Mahinda, carried the new teaching into Ceylon, where, after having been for ten generations handed down orally, it was for the first time committed to writing in the three great collections known as the *Pitakas*, containing, respectively, the rules of discipline of the order, moral discourses for the laity, and philosophical disquisitions. From Ceylon, Burma was converted in the fifth century, and Siam nearly two centuries later. These are the countries where the Southern or purer form of Buddhism prevails. But its most extensive conquests were made towards the north. By the beginning of the Christian era, it had become the religion of the north-westerly parts of India; and under the patronage of Kanishka, king of Kashmir, it spread into Afghanistan, Tartary, the Panjāb, Sindh, Guzarāt, and Rājputana. It was adopted in China in A.D. 62, by one of the Han emperors, and rapidly spread throughout that populous realm. Under the next great dynasty, the Tang (618-905), the *Sutras* and commentaries were translated into Chinese. From China, the religion passed to Korea at the close of the fourth century, and from Korea over to Japan in the middle of the sixth.

In China it was never able to supersede the ancient astrolatry, though, since the thirteenth century, it has profoundly stimulated and influenced philosophical speculation. And it still combines with the Confucianism and Tâo-ism of those populations. In Japan it soon absorbed, and has now practically superseded, the indigenous Fetichism. The most abnormal form of northern Buddhism was developed in Tibet. Introduced in the seventh century, it was there soon mixed up with the native devil-worship and belief in magic. Perversion of doctrine kept pace with the change of the order into a regular priesthood, whose rich endowments and compact organisation made them formidable rivals of the government; until, in 1419, the Dalai Lāma, the incarnate representative of the Buddha, became sole temporal sovereign as well as head of the Church.

In India itself Buddhism declined steadily after the sixth century. In the twelfth, the Mohammedan invasions swept away what remnants of it, in Kashmīr and Orissa, victorious Brahmanism had spared.

In its origin and purpose, the Buddha's reform was only a new development of Hinduism. Brahmans were among his first and chief disciples. Caste was not interfered with outside the limits of the order; and most of his basic ideas were taken from preceding systems of philosophy. Hence Buddhism is essentially meta-

physical, not theological. It ignores a Creator, and denies the existence of the soul as a separate entity ; its highest aim is not immortality, but the complete extinction of conscious existence (*Nirvana*). Yet it is the religion which, modified and combined with other systems, has perhaps found most acceptance amongst men. Hundreds of millions of Orientals find in it not only intellectual light, but spiritual sustenance and lofty moral guidance. It springs from a higher stratum of thought than the sky-worship of the Chinese, the Polytheism of Greece and Rome, or the Monotheism of Moses and Mohammed.

It holds within it, however, the seeds of its own decay, in its absolute stand-point, its pessimistic bias, its metaphysical notion of merit or *Karma*, as the germinal cause of moral re-births, and, above all, in omitting from its purview the social organism, and its consequent inability to direct aright the active powers of man. Yet its services to humanity have been immense. It has been for centuries to Eastern Asia all that Christianity has been to Western Europe, elevating woman, extinguishing slavery, softening manners, fostering art, and pointing out its noble path of the religious life to all who hungered after righteousness. [J. C. H.]

Burnouf : *Introduction a l'histoire du Bouddhisme Indien*, 1844, and *Le Lotus de la bonne loi*, 1852. Schlagintweit : *Buddhism in Tibet*, 1863. Rhys Davids : *Hibbert Lectures*, 1881 ; *Dialogues of the Buddha*, 1899 ; *Buddhism*, 20th thousand, 1903. Monier-Williams : *Buddhism*, 1888. P. Laffitte : *Grands Types*.

FO-HI. Prehistoric Period

Fo-hi is the Western form of the name of FUH-HE : the supposed author of the social and political system and first ruler of China. His date belongs to some indefinite period anterior to the historical epochs, which are usually thought to begin about the middle of the twenty-fourth century B.C. As the origin of English institutions is mythically referred to Alfred, of the Roman to Numa, of the Spartan to Lycurgus, and of the Jewish to Moses, so the Chinese historians referred Chinese institutions to Fo-hi.

He is said to have belonged to the central province of Honan, to have reigned 115 years, and his tomb is still shown at Chin-Choo. To him is attributed the institution of marriage, the separation of the people into classes and tribes, the division of time and of seasons, the calendar, the use of iron, of salt, of regular buildings, and the practice of fishing and hunting. His successor, Chen-Noung, the supposed second king, is said to have invented the plough, and to be the author of regular agriculture. This may represent the passage of Chinese civilisation from a nomad to a sedentary condition. Fo-hi, though long anterior to the invention of writing, is said to have invented the use of a circular diagram called *Pa Koua*, in which certain ideas could be indicated graphically. Here he represents the unknown founders of the oldest of all existing forms of civilisation. [F. H.]

See under CONFUCIUS.

LAO-TSE, b. 604 B.C.

LÂO-TSZE was born, B.C. 604, in a small village of what is now the department of Kwy-te-foo, in the province of Honan. The district then formed part of the kingdom of Chou. The site of his birth-place is still pointed out, and a temple is built there in his honour. Of the details of his life very little is known. He was for many years one of the keepers of the archives at the king's court. Ultimately he gave up this post, and lived in complete retirement. We are told that he received on one occasion a visit from Confucius, who was much his junior, and that he reproached him for troubling himself too much with the bustle and worry of the world. The time and place of his death are not known. But he left behind him the result of his meditations in a treatise entitled *The Book of the Way*, which has ever since been regarded as one of the Chinese Classics.

He is often spoken of as the founder of one of the three religions of China—that which bears the name of his book—Tâo-ism ; and a plentiful growth of legend and ceremonial has gathered round his name. But he himself made no claims of this kind. His book, which has been carefully edited and translated by Stanislas Julien, is a series of thoughts dwelling, in varied and emphatic language, on self-effacement and abnegation as the sole way of life. By freedom from desire, we reach the goal. By having nothing, we obtain all things. Heaven and earth are not for themselves ; therefore they endure. The wise man takes the lowest place, has no self-interest to serve ; therefore he overcomes. He is like water that sinks to the lowest level, and gives way to everything, and thus carries all before it. The sage makes himself all things to all men ; he treats evil and good alike ; his vengeance for injury is kindness.

The word "Quietism" sums up the teaching of Lâo-tse. When Buddhism penetrated into China many years afterwards, we find his followers making common cause with the followers of Buddha against the more practical teaching of Confucius. [J. H. B.]

Lao-Teh-King, translated by Stanislas Julien, 1842. *The Sayings of Lao-Tzü* (trans. from the Chinese). *Encyl. Brit.* Article LAO-TSZE, by Dr. Legge. See also under CONFUCIUS.

MENCIUS, b. 371 B.C., d. 288 B.C.

Mencius, the Latinised form of MANG-TSZE, was born in the state of Tsow, within what is now the province of Shantung, about 371 B.C. Like Confucius, he owed much to the training and influence of an admirable mother, some of whose sayings have been recorded. When she found her son hesitating as to a necessary change of residence out of consideration for her old age, she remarked : "It does not belong to a woman to determine anything of herself ; she

is subject to the rule of the three obediences. When young she obeys her parents ; when married her husband ; when a widow her son. You are in ripe age, I am old. Do as your sense of right guides you. I will act by the rule which belongs to me."

Of the life of Mencius but few details are recorded. We know only that, in the century that had passed since the death of Confucius, his disciples had multiplied so as to become a power in the land, fulfilling in many ways the functions of a priesthood ; counselling, restraining, maintaining ancient tradition and ceremonial. Mencius was foremost among these. We hear of him at the courts of many of the feudal States, over which the Chow dynasty still retained its nominal sway, maintaining his position as an independent counsellor, and expounding with remarkable boldness the Chinese theory of government. "The people," he asserted, "are the most important element in the State ; next to them are the spirits of the land and the grain ; the ruler weighs lightest in the scale."

Very striking are his comments on the early history of China, in which succession to empire was regulated not so much by birth as by the will of Heaven. Heaven declared its will by no audible voice, but by human actions and by great events. "Yao proposed Shun to Heaven, and Heaven accepted him. He ordered him to perform the rites of sacrifice ; and his sacrifices were well pleasing to the powers. He made him the chief minister of State, and State affairs were well ordered : all were at peace and satisfied. Thus heaven gave him the empire, and the people also gave it. When Yao died, the great vassals came, not to the son of Yao, but to Shun. Those who had law-suits went to Shun. The poets sang not the deeds of the son of Yao, but of Shun. Therefore said I that this was the work of Heaven. For it was said of old, The Heaven sees, but sees through the eyes of my people ; it hears, but hears through the ears of my people."

Even tyrannicide might be on occasion lawful. The prince of Thsi asked Mencius, "Is it true that Cheou-sin (the last king of the second dynasty) was put to death by Wou-wang ?" "So it is recorded," replied Mencius. "Has then a minister the right to dethrone or slay a prince ?" "He," replied Mencius, "who commits an outrage on humanity is a bandit ; he who defies justice is a tyrant. Such men we look on as reprobate and outcast. It was a reprobate outcast called Cheou-sin, and no prince, that Wou-wang slew." It is said that lineal descendants of Mencius still live in his native province. [J. H. B.]

Pauthier : *Livres sacrés de la Chine. International Policy*, 2nd ed., pp. 272-4. See also under CONFUCIUS.

THE THEOCRATS OF THIBET

LAMAISM, which is a system partly religious, partly political, is a modified outgrowth of Buddhism, prevalent in Thibet and

Mongolia. It stands in the same relation to primitive Buddhism as the Catholicism of the twelfth century stood to primitive Christianity. Buddhism originally rejected all kinds of ecclesiastical organisation; but, ultimately, one was developed which still subsists in Ceylon, Burma, and Siam. In Thibet (or Tibet, as Orientalists now write it), the indigenous religion, called Bon, was a rude form of Fetichism and Animism. In 632 A.D., about the time of Mohammed's death, a certain Srong Tsan Gampo, king of Thibet, introduced Buddhism from India as a civilising religion. He became the Alfred of Thibet, the national ideal of a typical king. He spent a long reign in the building of reservoirs, bridges, canals, the promotion of agriculture and manufactures, the establishment of colleges and schools, and the inculcation of virtue.

Buddhism, however, in a simple form did not thrive in Thibet; and, about a century later, another king sent to India for religious teachers; and ultimately a new theocracy, on a Buddhist basis, was established—the most flourishing period of which was from the middle of the eleventh to the middle of the fourteenth century. When Jenghiz Khan conquered Thibet, early in the thirteenth century, Lamaism entered the great Mongol empire, and by Kubla Khan (Khubilai, 1259-1294), it was formally established. Lamaism became a strict theocracy, when Kubla gave the Lamistic prelates the practical sovereignty over the country, much as Charles the Great established the Papacy. From the thirteenth century onwards, Lamaism developed as an Eastern analogue of Catholicism, having its Popes, hierarchy, monasteries, religious orders, ceremonials, the celibacy of its priests, confession, fasting, worship of saints, and external acts of devotion. It differed, however, in that Lamaism (or Lamism, as Sir M. Monier-Williams writes it) exercised an almost unqualified temporal sovereignty such as the Papacy never possessed except at certain times and over very limited districts.

The Hindu idea of *Avatar* took the form, in Thibet, of an incarnation of the Buddha in a succession of living persons, by a spiritual descent into their bodies, not by re-birth and their natural birth and growth; much as Apis, in the Egyptian system, descended into living brutes. The two highest incarnations of Buddha are first, the Dalai Lama, that is, the "Ocean Lama," at Lhassa, the metropolitan city, and the Tashi Lama, at Tashi Lunpo, the second metropolis. They are children, constantly re-selected, who are maintained in a condition of monastic seclusion and imperial pomp, treated with religious veneration, but wholly powerless, and, it is said, destined to early and secret death. In their names, and under the ultimate control of the Emperor of China, the abbots of the great monasteries exercise the whole temporal and spiritual sovereignty.

The monastic system has been developed in Thibet on a vast scale; it has a magnificence, and is endowed with a power, of which Europe hardly presents any example. The elaborate ceremonial,

the strange ritualism, the royal endowments, and the undisputed authority of the hierarchy in Thibet, have been described in many modern travels. Although the history and creed of the system are still somewhat obscure, it is undoubtedly the most complete scheme of a theocracy, almost pure in type, while debased in substance, which is still extant in the world. [F. H.]

M. Monier-Williams: *Buddhism*, ch. xl.-xv. Graham Sandberg: *Thibet and the Thibetans*. Clements R. Markham: *Thibet*. F. Grenard: *Thibet, the Country and its Inhabitants*.

THE THEOCRATS OF JAPAN

Under this name are recorded the founders of one of the oldest and most remarkable types of Oriental civilisation, that established in the Japanese islands many centuries before our era, of which, within the last sixty years, we have witnessed the rapid and complete transformation. Down to the time, about 1860, when Japan began to adopt much of Western civilisation, the islands had for nearly twenty-five centuries possessed a system partly adopted from China, which presented features of a theocratic type. The whole temporal and spiritual power was vested in a single person, himself endowed with a divine ancestry and attributes.

This was the Mikado, who is regarded as the heaven-born descendant of Zin-mu, the real or mythical founder of the Japanese civilisation, in the seventh century B.C. There are still in Japan three co-ordinate religions, easily combining with each other, and not very definitely distinguished—Shintoism, Confucianism, and Buddhism. They have affected Japan in the historical order here stated; but all of them have undergone great modifications and decay; none of them now seems to inspire either definite convictions or positive enthusiasm; and Shintoism, in a fluid form, seems to be now the more really influential belief, as it is certainly the oldest.

Shintoism is evidently a modification of a primitive Fetichism, or worship of Nature, in the form principally of Astrolatry, but also with definitely polytheistic characters. It never crystallised into the massive and organic type of Fetichism that was established in China. And it was always ready to accept modification from theological or metaphysical systems. Under this Shinto religion, the origins of Japanese government, centring in a deified Mikado, were traced back to Zin-mu in the seventh century B.C., who was regarded as an incarnation of the Sun-deity. His lineal descendants all the Mikados are supposed to be.

Japan was evidently conquered by Chinese sovereigns in the immediate centuries B.C.; and Confucianism was then introduced, modifying and mingling with Shintoism. In the sixth century A.D., Buddhism was introduced into Japan; and, for many centuries, it became the dominant religion, though much modified by, and also modifying, the aboriginal Shintoism. All three religions alike

contributed to consolidate the temporal and spiritual authority of the Mikado. The old clan-system of Japan developed an elaborate feudalism curiously like to that of Europe in the fourteenth century. And the Shinto priests elaborated a ceremonial form of theocracy, which is a rather inorganic and inferior mode of the Chinese Fetichist ritual. Its shrines were simple wooden buildings, evidently of a type arising out of Sun-worship, and arranged for fowls to announce the first rising of the orb of day. It had an elaborate system of festivals, holidays, ceremonials, worship, and pilgrimages to the tombs of venerated and deified persons. It had no images, but a highly-developed type of hero-worship and worship of dead ancestors.

As religions, both Shintoism and Buddhism have long been decaying, and have now lost all social and moral efficacy. But the centre or basis of both creeds, the autocracy of the Mikado, has given for many centuries, and still continues, amidst the revolution of Japan, to give striking proofs of its vitality. The break-up of feudalism, and the indifference to the old religions which we now witness, make it difficult to realise the original theocracy of Japan, as it existed before the impact of Western civilisation. The most valuable record of it that we possess is to be found in the travels of the German Kaempfer in the seventeenth century (1690). [F. H.]

Kaempfer: *History of Japan*, Engl. transl., 1727, bk. ii. cap. 1, 2, 3, bk. iii. cap. 3. James Murdoch: *A History of Japan*, 1911. W. G. Aston: *Shinto (the Way of the Gods)*, 1905.

MANCO-CAPAC

MANCO-CAPAC is the supposed founder of the aboriginal civilisation found by the Spaniards under Pizarro on the conquest of 1527. As the civil and spiritual system of old China was referred to Fo-hi, that of Japan to Zin-mu, so was that of old Peru referred to Manco-Capac, who is perhaps less remote and mythical than either. According to the native tradition, about four or five centuries before the Spanish conquest, two divine beings appeared in the region of Lake Titicaca, in the southern table-land of Peru. They were known as Manco-Capac, and his sister and wife, Mama Ocello. They were themselves children of the Sun, the great parent of mankind, who had sent them on earth to found civil society, and to teach the art of civilised life. They advanced along the highlands until they founded the city of Cuzco, in a high valley, at the head of one of the tributaries of the Amazon. Manco-Capac taught men the art of agriculture, the use of canals and irrigation, and the art of building; whilst Mama Ocello taught her own sex the art of weaving and spinning, and of household economy.

Their successors, the sacred Incas, who were at once absolute sovereigns and supreme pontiffs, maintained a fixed and peaceful community in happiness and industry, until the arrival of the

conquerors. The son of one of these, Garcilasso de la Vega, himself on the mother's side of the race of the Incas, has described the society they found and destroyed. It was undoubtedly a very ancient, highly developed, and almost perfect type of pure theocracy —the whole material and spiritual authority being vested in a royal race of divine character and origin, believed to be the descendant and vicegerent on earth of the Sun-god. *Inca* signifies king; *Capac*, great; and *Mama*, mother. The theocracy of the Incas must be compared with the Egyptian, in its vast extent and antiquity, its highly artificial system, the profound peace it secured, and in its remarkable development of industrial skill and art.

The civil organisation of the empire extended, it is thought, over 500,000 square miles, and gives proof of immense power and permanence. They could construct magnificent public roads; one, from Quito to Cuzco, being 1300 miles in length. They were sufficiently advanced in engineering to move and place enormous blocks and monoliths; their temples and public buildings were on a vast scale, and their arts exhibited both skill and wealth. Yet it is interesting to note that in this complex civilisation there was no writing, no alphabet. For recording events, keeping accounts, etc., the *quipu* was used, a rope with knotted strings attached. Poems and plays were transmitted orally, and at least one play has survived. The social organisation was complex and rigid. For the masses there was no system of caste, but they were in tutelage, carefully distributed in tithings and hundreds; officers chose for each his function in life, and the necessary training was provided; the privileged classes of the royal race were ordered in a species of feudal hierarchy, with gradations of wealth and power; but they were held in strict subordination to the deified sovereign and pontiff, the reigning Inca. The religious system was an elaborate and beautifully organised Astrolatry, the principal deity being the sun, who occupied the same place as "Heaven" in the Chinese Fetichism; then came the moon, the evening star, thunder, and the rainbow, the earth, air, mountains, and rivers. All of them had temples; the principal temple of the sun at Cuzco being a mass of gold, and magnificently ornamented. The Peruvian religion accepted a future state and the resurrection of the body, and had some metaphysical elements of an assumed Supreme Being and Creator; but as a whole, the religion must be regarded as a highly developed Astrolatry. The sacrifices were of grain, fruits, and animals; human sacrifices being strictly suppressed. The social system was strictly communistic, no private property being recognised, and the whole scheme of life was rigidly ordered. One of its peculiarities was a State system of rewards as well as punishments.

It forms one of the most perfect types of the all-pervading despotism of a permanent theocracy of which we have full and authentic history. It has been described in detail by W. H. Prescott, from the contemporary accounts of Spanish historians, mainly that of

Garcilasso, himself proud of being an Inca. All historians agree that this vast and elaborate despotism was suited to the genius of the native population, that it secured them profound peace, and received their unbounded devotion. [F. H.]

Prescott: *Conquest of Peru*, bk. i. Clements R. Markham: *The Incas of Peru*, 1910.

KAMEHAMEHA, b. 1736, d. 1819

The Hawaian, or Sandwich Islands, named from Hawaii, formerly called Owhyhee, the largest of the group, cover 6677 square miles. They form a cluster of eight inhabited islands in the Northern Pacific Ocean, lying in N. lat. 20°, about half way between North America and Asia. They were discovered by Captain Cook in 1778, and are described in his *Third Voyage*, bks. iii. and vi. He found the natives, who call themselves Kanaka, and belong to the same family of nations as the New Zealanders, with a state of civilisation relatively more advanced than that of other islanders, and with a complex civil and religious organisation. They were divided into three orders, the temporal power of the superior chiefs being absolute. Their religion was a stereotyped form of animal and nature worship, with elaborate ceremonials in honour of the dead, and the practice of human sacrifices. After the discovery by Captain Cook, who was killed at Hawaii, the islands were frequently visited by traders from Europe and from America, and some intercourse with civilised nations began.

KAMEHAMEHA was the chief of Hawaii, in succession to the chief in power at the date of Cook's death. In 1792 he obtained a sailing vessel, and ten years later he had collected a fleet of twenty small ships. He encouraged the settlement of traders and missionaries, and placed his kingdom under the protection of England. He extended his rule over the other islands, and laboured with great ability and success to introduce Western civilisation, commerce, and modern institutions. He died at a great age in 1819, and has been succeeded by a series of sovereigns of his race and name, under whom Hawaii became a regularly civilised community. In 1898 it was annexed to the U.S.A. Kamehameha is an interesting example, in recent times, of the autocratic ruler who raises up a rude Fetichist people into a civilised community, though it must be feared that the ungovernable commercialism of the West will have ere long supplanted the aboriginal society and race. [F. H.]

Cook: *Third Voyage*. Manley Hopkins: *History of Hawaii*. W. F. Blackman: *The Making of Hawaii*.

CONFUCIUS, b. 551 B.C., d. 478 B.C.

Confucius, the Latin form given by Jesuit missionaries to KUNG FU TSEW, was born near the town of Yen-chow, in what is now the province of Shan-tung. His father, Shuh Leang Heih, died

when Confucius was three years old. He had been an official of some rank and a soldier of distinguished courage. It was long remembered that, at the siege of Peih Yang in 562, having forced his way through the gate with a few followers who were being overwhelmed by numbers, he held the portcullis up by sheer strength till they made their escape good. At the age of seventy he married his second wife, Ching-Tsae, the mother of Confucius. To her wise counsels the son owed much; and at her death he honoured her with three years of mourning, first preparing a burial mound with revival of all ancient rites, under which his father's remains were also entombed. He was now twenty-three years old; but he had married four years previously, and his public life had long since begun. At the age of nineteen he had held the office of superintendent of the corn market, subsequently that of public lands. At twenty-two, we hear of him first as a teacher. What he taught is uncertain; but attention and intelligence were firmly exacted from his pupils. "When," he said, "I have presented one side of a subject to a pupil, and he cannot from it learn the other three, I do not repeat my lessons." We may believe that the months of seclusion following his mother's death were spent in preparation for his life's work.

China, in the time of Confucius, occupied less than a sixth of its present area. Its inhabitants had established themselves in the valley of the northern river in districts partly corresponding to the present provinces of Honan, Shensi, and Shantung. Of the great southern river as yet nothing was known. For two thousand years some settled social State had existed here, interrupted occasionally by long periods of decay and anarchy. One of these periods was now prevailing. The dynasty of Chow, established near Honan five centuries before the birth of Confucius, had long been enfeebled, and the kingdom was parcelled out among contending feudatories. But with political movements Confucius had little or nothing to do. His purpose was to effect a moral change by reviving all that was worth preserving in the ancient traditions of the nation; to rekindle the sense of duty to man, and of reverence for the higher powers that controlled man's life. A large part of his work consisted in gathering these traditions together, and in putting them into the shape in which they now stand. He said of himself always that "he was a transmitter and not a maker, believing in and loving the ancients."

Unlike the course of intellectual growth in other peoples, the primitive Fetichism of China had never passed into Polytheism. Supernatural agencies did not assume, as in Greece, India, and elsewhere, a human shape, but remained in intimate union with the visible objects which they pervaded. There were spirits of the hills and rivers, of the winds and forests, of the earth and the sky. But of these unseen forces no visible images were ever formed. The universal institution of ancestral worship was more deeply

rooted, and was carried further than by any other people. And over all other powers was the vast controlling influence of the revolving Heaven, supreme object of reverence. It was the purpose of Confucius to mould these institutions and beliefs to an ethical purpose; to show how, in the course of two thousand years of national history, reverent obedience to moral law and faithful performance of due rites had been followed by the favour of these unseen powers of Heaven and Earth; disobedience and transgression by signs of their wrath, and, these being neglected, by decay and downfall. How far in all this he was the mere transcriber of primæval wisdom, how far he read into the ancient records which he compiled and arranged the highest inspirations of his soul, cannot certainly be known. Enough that, but for him, the Bible of the Chinese would have been unwritten.

Hardly second in importance to his chronicles of the kings, was his collection of sacred poems. Many of these are of great beauty, telling of ancestral sacrifice—of simple village feasts in which thanks were offered to the spirits of the earth who made the young corn grow, and ripened the harvest;—of the struggles of a young ruler to follow the thorny path of duty. Simple words like these are to be found in them:

"With reverence I will go
Where duty's path is plain:
Heaven will I clearly know;
Its favour to retain
Is hard. Let me not say,
Heaven is remote on high
Nor notices men's way:
There in the starlit sky
It round about us moves:
Inspecting all we do,
And daily disapproves
What is not just and true."

Much of the life of Confucius was spent as a thinker, historian, teacher, moralist, passing from one of the small feudal States to another, and forming a school of disciples, penetrated like himself with the desire to revive and perpetuate a higher ethical standard. But he was no recluse: and was ready to put principle in practice when occasion offered. In the five years, 500-496 B.C., he held office as chief magistrate of the town of Chung-foo, in the dukedom of Loo. Under his administration stringent ordinances were made as to sexual relations, as to public and private expenditure, and as to burial rites. It is said that, before taking office, he insisted on the execution of the unjust minister who had preceded him. It is at least certain that a marvellous reformation of justice and public order took place under his rule. Envy and court intrigue drove him from power, and the next thirteen years were spent in homeless wandering from one State to another, often in much tribulation and with a deep sense of failure and unattained ideal. In 483 B.C., he was recalled by his prince, and under his protection the last five years of his life were spent in completing his task of arranging ancient records. He died in 478. The worship of his memory

began forthwith, and has remained to the present day as the chief binding and directing influence of Chinese polity.

The direct teaching of Confucius is to be found in the four treatises compiled by his immediate disciples. From these we gather how real and potent was the synthesis founded on the belief in spiritual agencies hidden in the world and encompassing man's life. "Vast and deep," he said, "are the subtle powers of Heaven and Earth; they are one with the substance of things and cannot be separated. There are oceans of subtle intelligence above and about us on every side." In the work entitled *The Great Study*, the object is defined as being "to develop the luminous principle of Reason which we have received from Heaven; to renew men; to set perfection before us as the great purpose of life. The princes of old strove to govern their kingdoms well; with this aim they endeavoured to order their families rightly: and in order to do this, they sought first to reform themselves, to render their souls upright, and their purposes sincere. From the highest to the humblest, duty is the same for all: self-reformation, self-improvement." "Men who have reached sovereign perfection can teach others how to obey the law of Heaven: can understand the natures of all living things, and lead them to fulfil the law of their being. Thus they form as it were a third power between the Heaven and Earth." Going into detail, he lays down five heads of mutual obligation between men: nine rules for their wise government; all springing from one great principle, the law of Heaven, of Perfection. In plainer language, his principal disciple summed up the doctrine of the Master thus: "Have an upright heart: love thy neighbour as thyself," or again: "There is one word which is in itself enough as the guide of life: What we would should not be done to us, let us not do to others."

[J. H. B.]

P. Laffitte: *La Chine* (translated as *A General View of Chinese Civilisation* by J. Carey Hall). Pauthier: *Livres sacrés de la Chine*. Legge: *Chinese Classics*, vol. i. *International Policy*, 2nd ed., "England and China." G. E. Simon: *La Cité Chinoise* (translated as *China: its social, political and religious life*). E. J. Simcox: *Primitive Civilisations*, part iv.

ABRAHAM. Reputed date, 20th century B.C.

The story of ABRAHAM, as told in the book of *Genesis*, is briefly as follows. The son of Terah, the last of a long line of patriarchal chiefs, who had lived since the deluge in the lands between the Euphrates and the Tigris, he came with his father from the city of Ur of the Chaldees to Haran. Thence, guided by the voice of God, he passed with his flocks and herds into the land of Canaan, in which it was foretold to him that his posterity should dwell. He set up shrines in Sichem, Bethel, Hebron, and elsewhere; was in friendly relations with the king of Egypt; and maintained his power as a patriarchal chief among the many nomad tribes that held the regions between the valley of the Euphrates and the Mediterranean.

He was in constant intercourse with Jehovah, who in visions of the night, by voices, and by mysterious messengers revealed to him the coming greatness of his race. At the call of Jehovah he showed himself ready to sacrifice his son Isaac. "He believed in the Lord," says the chronicler, "and it was counted to him for righteousness": words of which momentous use was made afterwards by St. Paul. Abraham is said to have died at the age of 175 years, and to have been buried at Hebron, in the cave of the field of Machpelah, where his tomb is still shown. From his wife Sarah came Isaac and the Hebrew tribe: from Hagar came Ishmael and the Arabian branch of the Semite family: from a third wife, Keturah, sprang other tribes.

It has been pointed out by the scholars, that the name of Abraham indicates "progenitor of tribes"; and that he must be looked on rather as an eponymous hero than as an historical personage. Obviously the stories of *Genesis* must be submitted to the same test as we apply to the early legends of Greece, Rome, or Britain. It would seem that at some time, between the 8th and 6th centuries B.C. when alphabetical writing came into gradual use, the early legends of this tribe, which we now know to be, many of them, of Assyrian or Acadian origin, were put together by the prophets of Judea. It was part of the purpose of the writers of the Pentateuch, consciously or unconsciously pursued, to intertwine with these early traditions the ethical conceptions of their own time, and thus to speak with the voice of the past. It would therefore be fruitless to inquire how far the facts recorded of Abraham are historical. Historical or legendary, he stands out for us as one of the noblest of theocratic types; a governor of men in primitive pastoral times who held spiritual as well as temporal power over them: who was their priest no less than their king. [J. H. B.]

Pos. Pol. iv. 128. See also under MOSES.

JOSEPH. Reputed date, 17th century B.C.

Of the tale of JOSEPH, told in the last thirteen chapters of the book of *Genesis*, with the touches of nature that make the world kin through the furthest ages, it is not needful to say much here. The son of Jacob, sold by his brethren to slave merchants, is brought to Egypt, and there through good and evil report rises, alike through his spiritual insight as a dream-intrepreter and as a practical statesman, to the highest offices of State. For "Pharaoh said unto his servants, Can we find such a one as this is, a man in whom the spirit of God is? And Pharaoh said unto Joseph, Forasmuch as God hath showed thee all this, there is none so discreet and wise as thou art: thou shalt be over my house, and according unto thy word shall all my people be ruled. . . . And he made him ruler over all the land of Egypt."

It is said of him that he married a daughter of the priest of On,

from whom were born two sons that gave their name to the tribes of Manasseh and Ephraim. He buried his father, embalmed in Egyptian wise, in Abraham's tomb at Machpelah. He himself was buried in Egypt, where his descendants continued to multiply till the time of Moses. It is not needful to criticise this ancient Hebrew tale, which holds an abiding place among the legends of the world. Whatever its historic truth, the story of Joseph, apart from its dramatic beauty, serves to commemorate, though indirectly and imperfectly, the ancient theocracy of Egypt. [J. H. B.]

See under MOSES.

SAMUEL, 12th century B.C.

SAMUEL was the son of Elkanah, of the tribe of Ephraim. His mother Hannah, being long childless, had prayed for a son at her yearly pilgrimage to the tribal god at Shiloh, and the birth of Samuel followed. The child was dedicated to the service of the shrine then administered by the priest Eli and his sons. The worship was barbaric and disorderly, and in accordance with the system on which, three centuries later, the history of the nation was written, it is described as degenerate from a former state of purity. What traces may have survived of higher moral traditions from Assyrian or Egyptian sources, marking out Israel from Moab, Ammon, and other surrounding tribes, must remain uncertain. In any case, through the long period corresponding to the book of *Judges*, we find a list of rulers, Gideon, Samson, Jephthah, and others, who arose from time to time as the champions of the tribe, continuing the traditions of the great deliverer who had saved it in far-off times from Egyptian bondage. Of these men it is said that they judged Israel. They led the tribe in battle : they were filled with the spirit of the tribal god : they presided over the rude worship at his shrines. In the earlier part of his life, Samuel was one of these. He delivered his tribe from the Philistines, who had seized their sacred fetich, the symbol of national unity. Then, when peace was restored, he judged Israel, passing in turn from one to another of the shrines of the god (1 *Sam.* vii. 16). His priestly power was hereditary : his sons succeeded him. But long before his death, the struggle, almost inevitable in theocracy, between priestly and military rule, had come to a head. A king who should lead them to battle was called for : and Samuel was content to consecrate his office : reserving to himself the power, should it seem fit, of superseding Saul by David.

Samuel was more than a priest-king : he was also a seer or prophet. We hear in his time, and henceforth, of companies of men who, under the influence of music, were stirred to mystical exaltation, and uttered sayings which were listened to as divine (1 *Sam.* x. 5). Among these were some who severed themselves from the rest, led lonely ascetic lives, and spoke with oracular voice in times of

national danger. Such a man was Elijah the Tishbite: and it would seem that after the struggle which led to the establishment of hereditary monarchy, Samuel led a life of this kind in the village of Ramah, where he died. We may thus think of him as one of the earliest movers in the mighty moral change which, through a long series of successors in times to come, was to transform the tribal god of an obscure province into a God of righteousness. [J. H. B.]

See under MOSES.

SOLOMON, 11th century B.C.

SOLOMON was the son of David by Bathsheba, the wife whom he had treacherously seized from Uriah. At David's death, Bathsheba as his principal queen retained sufficient influence to secure her son's succession, though not till after a fierce struggle, hardly avoidable in polygamous monarchies, with the son of another wife, and the slaughter of his following. Solomon confirmed and extended the conquests of his father, and raised the Hebrew monarchy to its highest level. On the south he was in friendly alliance with the Pharaoh of Egypt, whose daughter became his principal wife. Northward his kingdom reached the kingdom of Tyre. He levied tribute on the surrounding tribes with whom Israel had so long striven (1 *Kings* ix. 20). Ships were built on the Red Sea, that traded to the east and south and brought in stores of gold, jewels, and ivory. With Egypt also there was thriving trade. It seemed for a time as though the Hebrew monarchy was to become one of the great powers of the Mediterranean.

Solomon built a shrine to the tribal god, which, though not comparable in size and splendour to those of Assyria and Egypt, was yet magnificent by contrast with the rude earthworks where Israel had hitherto been content to worship. Seven years was this temple in building. At its dedication Solomon, as king-priest, presided. A long prayer is said to have been delivered by him in a spirit of pure theistic devotion, full of reference to the future destiny of Israel and to the time when all nations of the world should bow before Israel's god (1 *Kings* viii. 47, etc.). This prayer is of far later date, when the worship of Jahveh had undergone deep spiritual change. It is enough to note that sculpture of animals and plants, so stringently forbidden by Judaic monotheism, abounded in the temple of Solomon; and that hard by the shrine of Jahveh were erected shrines of Chemosh, Molech, and Ashtaroth, gods of rival or subject tribes.

Solomon was regarded by his nation as the wisest of men as well as the most powerful of kings. How far the well-known love-song, or the compilation of national proverbs that bears his name, is attributable to his time or to a later century, this is not the place to inquire. Solomon remains to us as one of the most familiar types of the theocratic king; the wise ruler, the organiser of national worship. [J. H. B.]

Pos. Pol. iv. 128. See also under MOSES.

DAVID, 11th century B.C.

DAVID was the youngest son of Jesse of Bethlehem, marked out from his brethren in early youth by Samuel, the prophet-judge of Israel, as one on whom the Spirit of Jahveh had fallen. Endowed with the gifts of music and song, he was brought into King Saul's presence to soothe his fits of morbid anger or sadness ; became his armour-bearer, defied and overthrew the champion of the Philistines, married the king's daughter, and at last became his rival. Many years of his life were passed in forced or willing exile, in wild warlike adventure among the Philistines and as the chieftain of freebooters and malcontents in the cave of Adullam or the stronghold of Engedi.

When Saul perished in battle, David after a long struggle was accepted as king of Israel. His capture of the Jebusite citadel on Mount Zion gave to his nation the fixed centre that was to become one of the sacred cities of the world. Here, it is recorded, he reigned thirty-three years. Being henceforth the centre of the tribes, it became of necessity the principal shrine of their god. An altar was built there : the ark, with its sacred contents, whatever these might be, was placed there. But of organised Levitical ritual, as set forth in the books attributed to Moses, there was yet no trace. David was the cherished hero of the Hebrew race ; the founder of the nation's military power, the national bard also, sharing to the full his countrymen's fierce passions, strong affections, and moods of mystic exaltation. It may be added, however, that most of the religious songs that bear his name belong to a time far later, when the influence of the prophets had slowly established a moral discipline, contrasting utterly with the wild and lawless passions that swayed the house of David. [J. H. B.]

See under MOSES.

ISAIAH, abt. 770-700 B.C. and 600-530 B.C.

The writings which bear the name of ISAIAH are the work of at least two writers, one of whom, the son of Amoz, lived in the kingdom of Judah during the greater part of the eighth century B.C. ; another, who more than a hundred and fifty years later, towards the close of the exile, sang of the downfall of the Assyrian monarchy and of the glowing hopes of Hebrew restoration.

From the beginning of the eighth century we have the first entirely authentic records of the remarkable series of men who protested against the rude fetichistic cult of the tribal god, spoke slightingly of burnt offerings and feast days as contrasted with acts of justice and mercy, and thus drew a sharp line of separation between themselves and surrounding tribes. In this outburst of intense ethical fervour no voice was more potent than that of Isaiah, the son of Amoz. Of the details of his life we know only that he lived in

Judah from the reign of Azariah to that of Hezekiah. We hear of him as going for three years half-clad and barefoot (*Isaiah*, ch. xx.) and his life throughout was probably that of an ascetic : but of one who gazed with intense interest at the course of public events. The two mighty monarchies of Assyria and Egypt, by which Israel was threatened on either side, were in deadly rivalry. Isaiah had a vision of his nation as the link of union between them (*Isaiah*, ch. xix. 24). But this vision was rudely dispelled. The two divisions of the nation were in constant conflict. In 720 B.C. Shalmaneser of Assyria destroyed the northern kingdom ; the ten clans composing it were carried into exile, and disappear from history. A few years later a similar onslaught was made on Jerusalem. Isaiah inspired King Hezekiah to firm resistance ; and the invaders were destroyed by pestilence. Isaiah's influence was now at its height. Hezekiah, at his instigation, suppressed the worship of all other gods than that of Israel, and abolished all shrines of Israel's god but that of Jerusalem. This reform was followed by a long reaction under Manasseh, and by a new and complete reform under Josiah. Then came the destruction of Jerusalem (600 B.C.) and the long captivity in Babylon.

At its close, when Cyrus of Persia was restoring the exiles, the great poet arose by whom the later chapters of the book known to us as Isaiah were written. By this time the religious transformation of Israel had been accomplished. Jahveh had become far more than a tribal god. He was the God of righteousness destined in some unknown future to sway the world. In the glowing fervour and pathos of the second Isaiah, Hebrew poetry reached its highest level. His touching allusion to a servant of Jahveh (whether, as some think, Jeremiah or an ideal portrait), who was despised and rejected of men, and suffering for his nation's sin, was applied by the Catholic Church to the person of its Founder, and remains for ever true of the Martyrs of Humanity. [J. H. B.]

See also under MOSES.

ST. JOHN THE BAPTIST, d. abt. A.D. 30.

JOHN THE BAPTIST was among the last of the long line of prophets who during a thousand years had from time to time arisen in Israel. Through their efforts the transformation from tribal Fetichism to Monotheism had been gradually brought about, and the Jewish Theocracy firmly established. For the vehement protest and indignant scorn of the earlier prophets there was henceforth no place ; religious fervour found an issue in the contemplative poems known to us as the Psalms, prompt, however, to burst into combative zeal when the successors of Alexander sought to impose the worship of Hellenic gods. The time came at length when the crust of traditions and hypocrisy rendered the routine of Jewish ordinances intolerably oppressive. Into such a time the prophet John was

born. We hear of him as an eremite, clothed in camel's hair, with a leathern girdle round his loins, living on the wild produce of the desert lands east of Jordan. From the villages of the Jordan valley, and even from Jerusalem, crowds flocked to his fervid preaching. They were baptized, they confessed their sins, and were exhorted to repent and to lead a new life.

John was looked upon as a successor of the ancient prophets, Isaiah and Elijah. He became a power in the land, holding his own in high places, and fearlessly condemning Herod the king for adulterous intercourse with his brother Philip's wife. This led to his imprisonment and death.

John did no miracles. Like St. Paul in after years, he looked on his work as wholly subordinate to that of another, who yet, for the very reason of his claims, not merely to miraculous powers, but to divinity itself, is not named here among the prophets of Israel.

[J. H. B.]

HAROUN-AL-RASCHID (*Harún-al-Rashid*), **b. abt. 762 A.D. d. 809.**

HARUN (Aaron, the Just), the most celebrated of the Arabian khalifs, fifth of the Abbassid dynasty, which descended from Abbas, the uncle of the Prophet, was the second son of Mehdi, the third khalif of his family, and the terror of Constantinople, then under the Empress Irene. Harun began his career of arms against the empire as a youth. In 786, at the age of 24, he mounted the throne of his father and brother, and placed power in the hands of the illustrious family of the Barmecides, making Yahya ben Khalid his grand vizier. He vigorously organised the defence of his kingdom on the side of the empire, and on the east he extended its frontier to Cabul and across the Oxus. But in the year 803, the khalif, in a fit of jealousy or passion, extirpated with relentless cruelty the family of Barmecide, whom all the Arabians praise for ability and generosity. In the same year Harun commenced a series of campaigns against the emperor at Constantinople, and he overran Asia Minor at the head of 300,000 men, inflicting a long succession of humiliations on Nicephorus. Turning his arms against Khorassan, he was seized with illness, and died A.D. 808, aged 47, after a reign of 23 years.

Harun was famous as a soldier, as the most magnificent of khalifs, and as a devoted son of Islam. Nine times he made the pilgrimage to Mecca; eight times he invaded the empire; and he carried to its highest point the fame and splendour of the court of Bagdad. Mansur, the grandfather of Harun, had surrounded himself with learned men, poets, artists, and philosophers, who preserved the learning of Greece, and kept alive the writings of Aristotle, Ptolemy, and Euclid. Harun reaped the glory of this patronage of letters. Although not himself the best or the greatest of his race, the Arabian

histories are full of tales of his magnificence, generosity, culture, and public spirit. He was a great builder, and a patron of art, poetry, and science ; and this, combined with the fame of those who adorned his reign, has made him the hero of *The Arabian Nights*. His injustice to the noble Barmecides, to whom he owed so much, has not extinguished his character for chivalrous magnanimity and courtesy. The West was delighted by a splendid embassy which he sent, in 801, to Charles the Great, on his assumption of the imperial dignity, offering a tent, a clock, an elephant, and the keys of the Holy Sepulchre.

Harun was the most widely known of the earlier successors of the Prophet—his empire stretching from Egypt to the Indus ; his rule being equally famous in arms, in art, in learning, and in splendour. With Abdalrahman of Spain, he is singled out alone of the khalifs to represent the Musulman Empire of the East, by reason of the reaction on the West of the Arabian culture which flourished in their reigns, and of the interest they aroused in the minds of the Catholic Middle Age. [F. H.]

Gibbon : *Decline and Fall*, ch. xlix., lii. *Pos. Pol.* iii. 404.

ABDAL-RAHMAN III., b. 891 A.D., d. 961.

ABDAL-RAHMAN III. was the eighth sovereign of the Omayyad dynasty, which founded a royal house in Southern Spain (822-1031), after the overthrow of the Omayyads in Asia by the Abbassids. Abdal-rahman, in 912, succeeded his grandfather, Abdallah, at the age of 21, as sovereign of Cordova ; and at once gave proof of his powers in peace and in war. He was pressed by the Fatimite Musulmans on the south, and by the Christians on the north ; but in a long series of successful wars he established his undisputed rule over the south of Spain. Except Leon and Catalonia, all Spain bowed to Abdal-rahman, who assumed the title of Khalif. After nearly 30 years of unbroken success, he met with reverses, and was again hard pressed by the indomitable armies of Leon, and in a domestic conspiracy he had been compelled to order the execution of his own son. With unremitting efforts and heroic spirit he maintained his kingdom in full power and splendour, and died, in 961, at the age of 70, after a reign of 49 years.

Abdal-rahman was undoubtedly the greatest of the Omayyad rulers of Spain, and his long reign was a period of wonderful brilliancy and success. He secured for Andalusia a great epoch of order and prosperity : agriculture, industry, commerce, arts, and sciences flourished. He had a superb navy, and a large and disciplined army. He developed commerce in the Mediterranean so greatly that the port duties formed the principal part of his revenue. His capital Cordova had 500,000 inhabitants, 3,000 mosques, and 113,000 houses. He was himself a great builder of cities ; and at the height of his power he is said to have amassed in his treasury no less than

20 millions of gold pieces. The ambassadors of the Roman Emperor from Constantinople were struck with the profusion of art, wealth, and power which the khalif displayed, and Christian princes acknowledged his great qualities and services to civilisation.

That which is his great distinction, and the ground of the place that he holds in the week of Mahomet, is the energy with which he promoted science, literature, art, and industry. The Charlemagne of Cordova, with inexhaustible activity, himself mastered each branch of science personally, and devoted himself with peculiar interest to the physical knowledge of the heavens. He founded the first school of medicine in Spain, which was long the centre of the medical knowledge of the Middle Ages. Much of the learning, the arts, and the mechanical knowledge of the ancient world was preserved in the Arab University of Cordova [see *Averrhoes*, under *Ancient Science*]; and its great protector, Abdal-rahman III., was not only at the head of the civilisation of the world during the tenth century, but he and the culture he typifies exerted a powerful reaction on the whole progress of Western thought. [F. H.]

Dozy: *Musulmans in Spain*, bk. iii. Stanley Lane Poole and A. Gilman: *The Moors in Spain* (Story of the Nations). Gibbon: *Decline and Fall*, ch. li, lii. *Pos. Pol.* iii. 404.

MAHOMET, b. 570 A.D., d. 632.

MOHAMMAD, called in Western languages Mahomet, was the son of Abdallah, the son of Abd al Mottalib, of the tribe of the Koreish, which for two centuries had been dominant in Mecca. No central government had been set up through the vast Arabian Peninsula. Various tribes, partly nomad, partly sedentary, held sway through ill-defined districts; a certain unity was maintained by language, by community of custom, by mercantile and religious pilgrimages. There were many local shrines in which stone worship and star-worship were practised, and here and there divine powers were represented in human shape. None was so sacred as that of Mecca, where three goddesses were worshipped, the central object of adoration being a black stone built into the eastern angle of the temple wall. This shrine, to which yearly pilgrimages were made from all parts of Arabia, was hallowed by traditions of Hebrew origin. Abraham was regarded as its founder: and here Hagar took refuge with Ishmael when driven forth. Jews were settled in many of the towns, and had told the story of their nation: and Christianity had been heard of also, not merely in its degraded Syrian type, but through anchorites who led ascetic lives here and there in desert places.

Mahomet's father died before the child was born: and his mother Amina while he was yet a child. Abu Talib, his father's brother, took charge of him and set him to tend his flocks. He was already marked from his fellows by abstinence from coarse pleasures, and by unstained loyalty; Al Amin, the faithful, was his name. When

25, he became the travelling agent for Khadija, a rich widow. Though fifteen years older than himself, she became his wife. Her unfailing trust supported him through the fierce inward struggles that went on before his mission was declared, and she was the first of his disciples. Many years passed before there was any open breach with the customs of his tribe. When the temple at Mecca, after destruction by a flood, was rebuilt and it was necessary to replace the sacred stone, Mahomet was chosen for the task, which he performed with characteristic insight into character so that each division of the tribe might share the honour. He was now thirty-five years old, of lithe figure, broad-chested, broad-browed, with restless fiery eyes. It was noticed that he withdrew himself often to a lonely cave outside the city, and remained there for hours and days wrapt in intense thought. The work of his life was here revealed to him in flashes of prophecy scorching as the bolts of heaven, whitening the hair and for the time paralysing the strength. The tribes around him were to be lifted above their lawless life of pillage, infanticide, and lust by unveiling the presence of an all-powerful God who judged the earth, and who sent Mahomet, the last of a long line of prophets, to bring all nations to Islam, the perfect surrender of the will to God.

Khadija was his first convert. Zaid, his faithful servant and adopted son, with his wife Baraka, who had once been Mahomet's nurse; Ali, his young cousin, also adopted as a son; Bilal, the Abyssinian slave; Abu Bakr, a rich merchant, Mahomet's dearest friend and first successor,—these formed the first group of disciples, which in the course of three years had increased to about forty souls. Mahomet now occupied a house opposite the Kaaba, and preached openly to the city, denouncing the worship of false gods. Persecution began. His uncle, urged by the Koreish, strove to silence him. "If they brought me," said Mahomet, "the sun to my right hand and the moon to my left, to force me from my work, I would not leave it till the Lord had made my cause good, or till I perished!" And his uncle, who still clung to the old faith, replied, "Depart in peace; for I will not in any wise give thee up." Then Hamza, another uncle, joined him, and at last Omar, hitherto the fiercest of persecutors. Yet success was slow till, in the great pilgrimage of 620, a few citizens of Medina declared acceptance of his faith, and swore allegiance. The words of their covenant are significant. "We will worship none but the one God; we will not steal, neither will we commit adultery, nor kill our children. We will not slander in any wise; neither will we disobey the Prophet in anything that is right." The faith spread rapidly in Medina; a city far nearer than Mecca to the scene of the great struggle now proceeding between the Persian and Roman empires. The time had come when the new faith was to prepare for intervention in those world-events. The first step was to add political to religious force by uniting the Arabian tribes round Medina as the centre of

government, while retaining Mecca as the sacred city, the centre of faith, the point towards which every pious Musulman should look while engaged in prayer. The *Hejira* (flight to Medina), June 622, is rightly reckoned as the Mohammedan Era.

The remaining years of Mahomet's life were spent in organising his politico-religious power throughout Arabia. His whole theocratic system, temporal as well as spiritual, is embodied in the Koran, which remains the standard of faith, and the basis of Mohammedan law. A long series of fierce struggles with Jewish and idolatrous tribes remained before the work was fully done. In January 630, he entered Mecca at the head of a vast and irresistible army. The sanctity of the ancient shrine was maintained, but all traces of idolatrous ritual were swept away. In March his farewell pilgrimage was made, and his last charge spoken to the vast multitude: "Your lives and property are sacred and inviolable among you. Treat your women well, for they are in your hands, and ye have taken them on the security of God. See that ye feed your slaves with such food as ye eat, and clothe them with the stuff ye wear. Know that every Moslem is the brother of every other. All of you are equal. Ye are one brotherhood. I have fulfilled my mission. I have left amongst you a plain command, the book of God, and manifest ordinances, the which if ye hold fast ye shall never go astray." A visit was paid to his mother's tomb, over which he wept bitterly because the Lord did not permit him to pray for her salvation. Then he returned to Medina, where two years afterwards he died and was buried, June 632. Abu Bakr, his friend, succeeded to the spiritual and political headship. Four years before his death, Mahomet had issued his appeal to Heraclius of Constantinople, to Chosroes of Persia, and to the rulers of Egypt and Abyssinia, warning them to accept the true faith. Within ten years from Mahomet's death, that faith had prevailed through Syria, Persia, Egypt. Before the century had closed, it had spread through Northern Africa, and was threatening Western Europe. [J. H. B.]

Life of Mahomet: Sprenger; Muir. R. B. Smith: *Mahomet and Mahometanism*. T. W. Arnold: *Islam*. Carlyle: *Heroes and Hero-Worship*. Gibbon: *Decline and Fall*, ch. l. *Pos. Pol.* iii. 397, iv. 440-442. The *Koran* is placed in the Positivist Library between the *Bible* and St. Augustine's *City of God*.

ANCIENT POETRY

AFTER the Theocracies which first organised the elements of civilisation comes ANCIENT POETRY, which embodied the germs of progressive evolution. The social and moral influence of Poetry in the ancient world was greater than it has been since, or perhaps ever can be again. At the epoch of the first emancipation of mankind from the immovable order of the Theocracies, an emancipation which naturally began in the coasts and islands of Asia Minor and Greece, there appeared a succession of poets who transfigured the religion, the morality, the patriotism, and the art of the races struggling into a new and free life. They had no other teaching, no writings, no organised priesthood, no intellectual or artistic guides, but the poets. As elsewhere, poetry in Greece came long before prose. The supreme poet appeared. He systematised their theology ; gave them ideals of heroism ; glorified their lives, and filled their imagination with types of valour, beauty, and wisdom.

Thus the great epics became to the Greek race, itself scattered widely over the islands and peninsulas of the Eastern Mediterranean, their sacred volumes, their literature, their school, their creed, and their national poetry—at a critical moment of human evolution. The problem was this : Human progress—science, art, thought, policy, and free society could not develop in the heart of the great primitive theocracies ; and yet they could not develop without the aid of the arts and the knowledge which, in long centuries, the theocracies had accumulated. Phœnician and Syrian traders carried these arts of life to the shores of the Ægean Sea, where the Asiatic despots could hardly reach them. This beginning of progress can be traced from about 1000 B.C. to 500 B.C., when the open conflict began. About the middle of that period a great genius formed the type of epic which we know as the Homeric poems, and gave the key-note of all Western art. The conquests of Alexander carried these over the face of Asia, and the Roman Empire ultimately incorporated them, being the natural type of poetry as conceived by the ancients.

At the opening of the contest with the Persian Theocracy, the second great genius of Greece, the greatest recorded genius in pure tragedy, invented the Drama, which he designed to be a school of national and religious inspiration. Thence followed the tragic and comic poets, all peculiar to Athens, who are allied to the lyrists, and who all have abundant lyrical elements. The comedians, lyrists,

and artists of antiquity, with all their manifold excesses, licence, and failings, did, in their higher manifestations, add imperishable elements to the growth of human civilisation. In its nobler moods, the poetry and the art of antiquity formed a permanent expression of the deep-seated love of the beautiful in Nature, in Man, and in human life and manners, in all their aspects, grave or gay.

The first week of the month is devoted to the lyrists and tragedians of Greece, and includes the late name of the Byzantine, Longus, distant at least 1200 years from Homer. Such was the extraordinary period over which Greek literature was prolonged.

The second week contains the sculptors, architects, and painters of Greece, in their various schools and epochs.

The third week contains the comedians and satirists of Greece and Rome, classed together; for here the work of Rome is able to be compared with that of Greece, which could not be in the arts of form or of tragedy. The Fabulists are included, as continuing the comedy of human manners.

The fourth week is given to the poets of Rome, epic and lyric, covering a period of not more than two centuries and a half; but, by the spiritual and prophetic vision of a Reign of Peace which inspires the poems of Virgil, continuing its influence throughout the Middle Ages, until it was embodied anew by Dante. [F. H.]

HOMER, 9th century B.C.

HOMER will always remain the greatest and most typical name not only in ancient poetry, but in ancient art as a whole. Whatever conclusions modern scholars have arrived at concerning the origin of the Homeric poems, they would all agree in placing the name of Homer where Comte has placed it; and the reasons of their choice would be in substance the same as his :—

(i) Homer is the greatest representative of primitive pre-literary poetry.

(ii) The *Iliad* and the *Odyssey* are the types of epic poetry; and contain, in detail, some of the noblest and purest poetry in the world.

(iii) Homer is a most important source of knowledge as to the life and thought of primitive Greece.

(iv) Homer is the principal factor in the intellectual development of Greece, the type and model of Greek art and character.

(i) When we consider Homer as the representative of primitive poetry, we must hold some theory as to the nature of the personality hidden behind the poems which bear his name. Those poems, which have been known to the world for more than two thousand years as "*Homer*," may most probably be dated about 800 B.C. The literature and the poetry of that age were supplied in the Greek world, surrounding the Ægean Sea, by a class of wandering minstrels who sang or

recited from place to place the stories of bygone days. To which part of this Greek world we owe the birth of the Homeric poems, we cannot say. Some of the minstrels, no doubt, were poets of creative power : others adapted or repeated their lays. One of the favourite legends among the bards related to a great siege of the city of Troy, or Ilium, in North-West Asia Minor, by a combined force of Greeks from every tribe. The motive of the war was well fitted to commend the story to the hospitable halls of the Greek chiefs : it was revenge for the rape of a Greek chieftain's wife by a foreign guest—Helen, the wife of Menelaus, by Paris of Troy. After many adventures and prolonged delay the invaders took the city and burnt it.

One incident in this story, which was sung in innumerable lays, was seized on by an imagination stronger than the rest, and was made the central thought and connecting link of a longer lay. It told of the wrath of Achilles, the chief hero of the Greeks, who, wronged by Agamemnon, another leader, withdrew for some time from the fight : it described the sufferings of the Greeks in the absence of the hero : and how at length he was induced, by indignation and grief at the loss of a fallen friend, to return to their help, and to stem the tide of defeat. This story was the primitive *Iliad*, and forms the greater part of the present poem. The unity of the motive and the greatness of the poetry made the lay a favourite with the bards ; but, as they recited it, they were tempted by local interests and by ambition to add fresh episodes celebrating other Greek chiefs besides Achilles and other tribes. In these additions, however, they maintained the spirit and the style of the greater bard, and very likely in some cases adapted other short poems of his own. We may thus speak of the *Iliad* as the work of Homer—if Homer were the great bard's name—in much the same sense in which we speak of the Parthenon marbles as the work of Phidias, though we cannot suppose that they were all executed by his own hand.

The other great poem which we attribute to the same name embodies another fragment of the legend of Troy. It relates the adventures of Odysseus—the hero of counsel among the Greeks at Troy, as Achilles was the hero of war—on his journey home from Troy to Ithaca : it describes the troubles suffered in his absence by his wife, Penelope, and his son, Telemachus, at the hands of a crowd of greedy and importunate suitors ; the fortitude and constancy with which they resisted the attacks and the final triumph of the hero on his return, who appears at last as great in action as in counsel. That this poem the *Odyssey*, is the fruit of the same genius which planned the *Iliad* there is no evidence. The differences in general tone and in detail are many and striking ; and they led even a school of Greek critics to attribute the two poems to different poets. If we are led to the same conclusion, we need not marvel that the youthful vigour of a poetic race, and the favouring conditions of an age of minstrelsy, produced at least two poets of surpassing merit. But we must note a similarity of language and subject sufficient to show that the poet

of the original *Iliad* exercised a powerful influence over later as well as contemporary poets. His unique greatness lies in this, that he combined the strong human sympathy, the life-like action, and the picturesque language of early poetry, in their most perfect form, with the conception of a unity of structure and a progressive interest which belongs naturally to a later and literary age.

(ii) When we come to consider the *Iliad* and the *Odyssey* as a poetic whole, and to estimate their importance in the evolution, first, of the Greeks, and then of Humanity in the sum, the question of the origin of the poems, and even of the personality of the poet, becomes comparatively insignificant. Both the poems, and especially the *Iliad*, were accepted from the first as the type of epic, the highest order of poetry. It is from Homer that Aristotle draws his canons of epic poetry. An epic poem must constitute a united whole. This unity in the *Iliad* is what we recognise as the trait of the great original poet—that trait which impressed itself most on his contemporaries and reappears even more strongly marked in the later *Odyssey*. An epic poem, too, must develop a progressive interest. This interest we feel in the course of that primitive *Iliad*, free from inconsistent digressions, where reverses press harder and harder upon the Greeks until the death of Patroclus touches Achilles' personal feelings and brings him back to the Grecian host. And in the final catastrophe of the *Odyssey* we feel that progressive interest even more strongly developed as the recognition of the hero and the overthrow of his enemies are slowly and steadily prepared. The third mark of the epic which Aristotle demands—dignity of language and manner—belongs to Homer in an unapproachable degree, and gives a peculiar charm and force to almost every line of the two poems.

Besides these qualities, which belong to the *Iliad* and *Odyssey* as a whole, the details in every part are marked by certain unique and consistent features. We are presented with a picture of every type of human character and every phase of human life possible in an early military society. All these are drawn not with a subtle psychological analysis, but in clear characteristic strokes, marking out types true to all time. And, though typical, none of Homer's characters are ideal, but purely human. We have bravery typified in many forms—commanding in Agamemnon ; generous in Menelaus ; high-spirited in Achilles. In Nestor we have the counsellor, wise with years ; in Odysseus, the man of cunning word and scheme ; Andromache is the tender wife, fearful of her husband's danger ; Hector, the loving husband—loving honour more ; Penelope, the matron and constant wife, faithful against time and importunity ; Achilles, the devoted friend, tortured even at night by the loss of his companion. And in their subordinate spheres are warriors, minstrels, children, slaves, clearly and truly drawn to life.

Looking at the language of Homer, apart from the subject-matter, we are struck most by its simplicity, the directness of the diction, the movement of the verse. Nearly every illustration appeals not to

thought and memory, but to eye and ear, and is expressed in language as vivid as the picture. And when the words describe not action, but feelings, they are full of reality, and go straight to the heart. "Wife!" says Hector, as he takes farewell, "verily, all that is in my mind. But I should be shamed indeed before the Trojans and their long-robed wives were I, like a coward, to avoid the battle" (*Il.* vi. 441).

(iii) In using Homer as an authority for the thought and life of primitive Greece, we must remember that he is a poet. The main features of the society he describes will be drawn from the facts around him; the details will be largely imaginative, and in the region of pure imagination—the supernatural sphere in Homer—the poet will make long advances beyond the habitual thoughts of his hearers.

To the society of Homer the patriarch has become the priest and king of his tribe—the leader in battle and in council—the source and dispenser of justice. Such are the chiefs of the *Iliad*. In time of peace the chieftain lives in his ancestral home, and superintends his herds and lands. Such a position Odysseus holds in Ithaca, and Alcinous in Phæacia. Art and commerce in Homer are almost entirely of foreign origin, due to Phœnician merchants. Literature is unknown.

The morality of Homer is indicated by the types of character which are held up to admiration—the brave warrior, the clever counsellor, the liberal host, the faithful friend, the constant wife; and by those which are held up to reprobation—the coward, the spiteful detractor, the greedy and arrogant man. No general principles are appealed to; but the loyal observance of particular ties, and especially those of a relative or a friend, is recognised as a duty. Women—as heads of households—enjoy a high degree of freedom and respect.

But it is in his theology that Homer most perfectly sums up the thought of the age, which he puts into the shape which most powerfully influenced the thought of posterity. We see the older fetichistic deities—earth, sun, sea, night, superseded by the later and perfectly human types—Zeus, Here, Apollo, Aphrodite, and Poseidon—in which the Greeks figured the Deity. To these deities, Homer gives the distinctive character and the position and function in the Pantheon which they retain throughout the Greek system. The gods become men and women of stronger passions and larger powers, but differing from men and women only in degree. And although these supernatural beings take part in the action of Homeric story, and interfere with the course of natural events, their action and interference are so defined and limited, that the story preserves its natural interest, and the men and women gain rather than lose by the presence of the superhuman.

(iv) The supreme greatness of the Homeric poems is learnt in the history of the Greeks and in the analysis of Greek thought. In the first place, Homer was the one common possession of all the Greeks. Their actual life was broken up by innumerable feuds and jealousies; in Homer, more than in any historical event—more even than in

Marathon and Salamis—they had a meeting-ground in the record of a united and disinterested action. It is the charter of Greek unity. It is, too, with Hesiod's poem, the Bible of the Greeks. It was studied by every Greek—known by heart, we are told, by many. The expositor of Greek theology appealed to Homer. The sceptic attacked the belief of Homer as the representative of the popular creed. The teacher of morality quoted his texts from Homer; and those who, like Plato, wished to purify and elevate the national morals, found in Homer the traditional standard which they condemned. Homer is a key to the Greek view of life and of the world. The human ideal of religion and morality which we find in him dominates their whole conception. The gods are greater men, perfect in those personal qualities which were prized as virtues—strength, beauty, and wisdom. As the old men in Troy adored the beauty of Helen in spite of the troubles she had brought upon them, so the Greeks found in beauty of every kind the seal of perfection, and connected ugliness with imperfection and vice, as Homer united them in Thersites. The ideal of art, connected intimately from the first with religion, is to make the perfect human form as an honour and an offering to the gods. Not only in its general aim and spirit, but in every department and every detail of Greek art—and thence of Roman art—we find the influence of Homer. In sculpture and painting, the types of the gods were the types which Homer had created—the Zeus of Phidias was the Zeus of Homer. In the drama, tragedians found their subjects in the Homeric tale; the plays of Æschylus were "morsels from the feast of Homer," while the spirit of Greek tragedy breathes already in many Homeric scenes:—the parting of Hector, the house of Priam after Hector's death, the ransoming of Hector's body. As the type of epic poetry, Homer gives inspiration, subject, and many details to Virgil; and through Virgil we trace the influence of Homer in the modern epic. [F. S. M.]

On Homeric Question, Vico: *Nuova Scienza*, book 3, 1725; Wolf: *Prolegomena*, 1795; G. Murray: *The Rise of the Greek Epic*; Grote: *History of Greece*, vols. ii. and iii.; J. P. Mahaffy: *History of Greek Literature*, vol. i., and *Social Life in Greece*. On characteristics of Homeric Poetry, P. Laffitte, *Grands Types*, ii. 11; M. Arnold: *On Translating Homer*. On Homer as historical authority, E. Abbott: *History of Greece*, vol. i.; R. C. Jebb: *Introduction to Homer*. Prose Translation of *Iliad* by A. Lang, W. Leaf and F. W. H. Myers; of *Odyssey* by S. H. Butcher and A. Lang. W. Leaf: *Companion to the Iliad*. F. S. Marvin, R. J. G. Mayor, and F. M. Stawell: *The Story of the Iliad*; *The Adventures of Ulysses*. *Pos. Pol.* iii. 235-238. For the period of the Homeric poems as indicated by astronomical allusions, G. Forbes: *History of Astronomy*.

HESIOD, 8th Century B.C. (?)

HESIOD was the bard to whom Greek tradition attributed all ancient poetry of what is called the Boeotian School. These writings contain long genealogies and catalogues of mythical heroes or heroines, their adventures and their races; lists of "proverbs," like the *Proverbs* of Solomon, but referring mostly to agriculture; a minute knowledge of everything Boeotian; and a greater interest in the arts

of peace than in the Homeric themes of war and heroism. In one of these didactic poems—the *Works and Days*—the poet gives us his biography, which passed in later Greece as the biography of "Hesiod."

His father came from the colony of Cume, in Asia Minor, to Ascra, in Bœotia, to better himself as a farmer. The farm, which should have come to the poet, was obtained, through the decision of unjust and corrupt judges, by his brother Perses, to whom, in the poem, he addresses many rebukes and lamentations. But the greater part of the poem consists of advice for profitable husbandry and agriculture, interspersed with happy touches of natural description, and full of a simple charm. The moral teaching is simple, personal, and intensely practical. The theology which appears incidentally, in rustic superstitions, in the *Works and Days* is developed fully in the *Theogony*, which systematises into a regular Pantheon all the popular deities of the time. It was the influence exercised by this work over the imagination of his countrymen which gained Hesiod the reputation of having, with Homer, "created the religion of the Greeks."

[F. S. M.]

J. P. Mahaffy: *History of Greek Literature.* J. A. Symonds: *Studies of the Greek Poets.*

TYRTÆUS. Flourished abt. 680 B.C.

TYRTÆUS was so renowned for his war-songs that Horace does not fear to join him with Homer as one who "by his songs roused men's hearts to war." We have no certain facts about his origin or his life; but Greek tradition is consistent in making his birth-place Aphidnæ, one of the demes, or wards, of Athens; and he is said to have lived at the time of the Messenian revolt against the Spartans. The distress and discontent at the ravages of the Messenians became so great in Sparta, we are told, that the Spartans decided to consult the oracle at Delphi for their relief. The oracle bade them seek a leader from Athens; and, when they did so, they received Tyrtæus, whom the latest stories describe as a lame schoolmaster, unfit for the labours of war, but able to supply, what the Spartans most needed, the stimulus of poetry and music. Inspired by his songs, they again took the field, and to him they attributed their final victory.

Tyrtæus is thus, in a twofold manner, an instance of the influence of the spiritual power on practical life: he was sent to the Spartans by the common religious authority of the Greeks, and he inspired and sustained a warlike activity in which he could not himself take part. The few stirring fragments of his poems which remain justify the esteem in which he was held by the Greeks, and are a valuable example of the power of poetry as a direct incentive to brave actions and noble character.

[F. S. M.]

J. A. Symonds: *Studies of the Greek Poets.* J. P. Mahaffy: *History of Greek Literature.* Bergk: *Poet. Lyrici Gr.*

SAPPHO, 7th Century B.C.

SAPPHO, who called herself in her Æolic dialect *Psappha*, one of the greatest of the Greek lyrists, was a Lesbian, who flourished in the latter half of the 7th century B.C., being at the zenith of her fame about 610 B.C. Of her life almost nothing certain is known; from the mass of legend and of scurrilous anecdote which gathered round her name nothing trustworthy can be extracted. She belonged to, and was the chief glory of, the Æolian race in Asia Minor, a people who carried to their highest point the Hellenic love of beauty, their sympathy with all animate and inanimate nature, and their passionate emotions of love and joy. Sappho appears to have been the centre of a luxurious society in Lesbos, devoted to art, poetry, and all forms of culture; and she collected around her a sisterhood of girl friends and pupils, with whom she formed a school of poetry and art. She was believed by the ancients to have been small in person, dark, with bright eyes, and of vivid passions; but all that is personal of her, her loves and her jealousies, has been completely overlaid with late and worthless legend.

All antiquity combined to praise her genius as matchless and perfect. She was called simply "the Poetess"—just as "the Poet" meant Homer. No defect was ever suggested as entering into her art. She was named "the tenth Muse"; and from Herodotus, Plato, and Plutarch, down to the extinction of Paganism, the ancient world spoke of her with rapture. She is the only woman of antiquity in the Calendar; and, beyond question, is the greatest genius who has ever appeared amongst women. Unhappily, the fanaticism of the Christians, stirred up by the bad name which the ribaldry of the comedians had imputed to her memory, has robbed us of almost the whole of these exquisite poems, the delight of the ancients during ten centuries. Two short poems, and about 150 scattered and broken lines, alone survive to give us an idea of their beauty. But these are enough to show us that she reached the highest range of lyric art. There is about every extant phrase of Sappho a peculiar stamp of exquisite and unique loveliness. It is no exaggeration when Mr. Symonds says: "Of all the poets of the world, Sappho is the one whose every word has a seal of absolute perfection and inimitable grace." It may be that her range was restrained to the praise of beauty and the expression of passion. But within that range, Sappho has never been surpassed—we may almost say, has never been equalled—by any poet in ancient or in modern times. Professor Gilbert Murray writes: "She is a love-poet of a peculiar kind. She is the type of those natures to whom Love is no God of Joy, but a God of Terror. There is no thought of lightness or recreation, nothing frivolous, hardly anything cheerful, in her extant poems. Love, with her, is a consuming passion which burns all life away, and leaves the lover sick, miserable, and half-mad. Her poems have the solemnity and passion of Dante's *Vita Nuova*; though not the same spiritual

mysticism." Her inimitable phrases, in the wonderful language of her country, have proved the attraction and the despair of poets from Catullus to Swinburne. [F. H.]

H. T. Wharton: *Sappho*: Text, life, prose, and all known verse translations. J. P. Mahaffy: *History of Greek Literature*. J. A. Symonds: *Studies of the Greek Poets*, 1st series. A. S. Way: *Sappho* (text and verse trans.)

ANACREON, b. 563 B.C., d. 478 B.C.

ANACREON was an Ionian Greek, born at Teos, a seaport in Ionic Asia Minor. Living at a time when the Greeks in Asia were under attack from the East, he was twice compelled to change his abode and settled finally in the court of Polycrates, the brilliant "tyrant" of Samos. After his death, he found a new patron in Hipparchus, the tyrant of Athens. He is the typical Ionian poet—the poet of ease, enjoyment, and grace; of love, too, but of love that is the exact opposite to the love of Sappho. Living in idleness and comfort, he sang of love and wine as a systematic voluptuary, who feared nothing but the approach of old age. His nearest parallel in ancient literature is Horace; but Anacreon has none of the quiet wisdom of Horace, or his genial sympathy with all phases of human life. He wrote, however, the gayest and most winning of Greek verses, and impressed himself so strongly upon later writers, that a number of poems in his own graceful manner were composed in the fourth century B.C., which long passed current as Anacreon's work.

[F. S. M.]

Mahaffy: *History of Greek Lit.* i. 196. Symonds: *Studies of the Greek Poets*, i. 146. For genuine and spurious fragments, see Bergk, *Poet. Lyrici Gr.*

PINDAR, b. 522 B.C., d. 443 B.C.

PINDAR was born B.C. 522, at Cynoscephalæ, near Thebes, of a family of flute-players, and showed his poetic powers at an early age. As a Theban, he was opposed to the patriotic Greeks in the great struggle with Persia, and as a professional poet, writing for all Greeks alike, he stood all his life aloof from the politics and the cities. His poems were all of a lyric character, and were written to be sung by choruses moving to the rhythmic measure of the verse. They comprised *Hymns to the Gods*, *Pœans*, *Threni* or *Lamentations for the Dead*, and *Hymns to the Victors in the Games*. Excepting fragments, the last alone survive.

His claim to our remembrance and study rests on many grounds. He was the most famous and popular lyric poet of his day, and is the only Greek lyric poet of whose works any considerable portion remains. He possessed an extraordinary wealth of language and of imagery, which often renders his poems complicated and difficult to understand. He illustrates the glories of the victors by allusions to the exploits and traditions of their ancestors and their cities in

every age, so that his works are a mine of reference to the mythologist and chronicler of ancient Greece. Plutarch alone has ninety quotations from Pindar. But the extant poems are, perhaps, most interesting from the picture they give us of the place of importance which the athletic contests at Olympia, Nemea, and the Isthmus held in the minds of the Greeks. Victory here conferred an honour with which no other distinction could compare. [F. S. M.]

J. A. Symonds: *Studies of the Greek Poets.* J. P. Mahaffy: *History of Greek Lit. Pos. Pol.* iii. 236.

SOPHOCLES, b. 495 B.C., d. 406 B.C.

The long life of the second great dramatist of Athens extends over the whole period of her glory, and ends just before her great collapse. He saw the Persian wars and the Peloponnesian wars, the whole career of Themistocles, Cimon, Pericles, and Nicias, the rise and perfection of all the arts of poetry and form, and all the great Athenians between Aristides and Plato.

SOPHOCLES, the son of Sophilus, was born at Colonus, a village about one mile from Athens, in 495, five years before Marathon, and fifteen before Salamis. He died just before the disastrous close of the Peloponnesian war. He was by a generation younger than Æschylus, and somewhat older than Euripides. His father, a substantial man of business, gave him the best education. His beauty, grace, skill, and charm, made him, as a youth, the mirror of his time; and at the celebration of the victory of Salamis, he was chosen, then aged 15, to lead the choir with his lyre. At the age of 27, he defeated Æschylus for the tragic prize in a memorable contest. From thenceforth till his death, more than 60 years later, he continued to produce, it is said, 113 dramas, gaining the first prize 20 times. At the age of 55, he was, with Pericles, one of the generals in command at Samos; and at the age of 82 he was (probably) one of ten commissioners who finally superseded the democracy. But his military and political career were honorary, and we have no record of his ever being more than a popular and honourable citizen. He died in his 90th year, just before the catastrophe of his country, having long been the model of the Attic culture and perfection at its highest mark. He is famed for being the type of "sweetness and light," as conceived in the golden age of Athens, the man of "sweet temper," of consummate grace, and of uniform balance of mind.

Sophocles marks the passage from the drama as a religious institution to the drama as a work of pure art. He made the great step in advance of adding a third speaker to the second of Æschylus; and this was, evidently, essential to the full development of the dramatic ideal. The plot, and the elaborate evolution of character and situation in his plays, are artistically a great advance upon the simple conceptions of Æschylus; and, in discarding the *trilogy*, he was able

to make each drama a highly complex and refined study of *character* in action. Hence, by his contemporaries at Athens, and, perhaps, by the ancients, Sophocles was regarded as the perfection of the tragic poet. The *Œdipus King* was taken by Aristotle as the type of true tragedy. And Professor Jebb calls it "in one sense, the masterpiece of Attic tragedy." As a work of consummate art, it is perhaps the most perfect tragedy extant. In the same way, all the seven plays of Sophocles which survive are examples of supreme skill in painting character, and in the combination of tragic situations. But the poet is no longer, as in the Trilogy, hero, prophet, and preacher; he is simply the faultless artist.

Of the consummate beauty of Sophocles as a poet, of his unerring feeling for truth and symmetry, of his nobility and dignity of manner, of his exquisite mastery of himself and all his resources, ancients and moderns are eloquent. In form, he has never been surpassed by ancient or by modern poet. It has been well said that the beauty of form in him, as with Raphael and Mozart, seems to conceal the strength and fire within. But withal, the strength and the fire have not the sublime inspiration and the moral grandeur of Æschylus.

[F. H.]

R. C. Jebb: *Sophocles, annotated and translated into English Prose.* L. Campbell: *Sophocles in English Verse.* G. Murray: *Œdipus, King of Thebes,* trans. into Eng. verse. J. A. Symonds: *Studies of the Greek Poets.* J. P. Mahaffy: *History of Greek Literature.*

EURIPIDES, b. 480 B.C., d. 406 B.C.

EURIPIDES was born at the island of Salamis, whither his parents had fled for refuge at the time of the Persian invasion. He died in 406, in the same year as his senior Sophocles, just before the close of the Peloponnesian war. He lived the life of a student and studied philosophy, as a youth, under Anaxagoras; and, in later life, with Socrates. He is the latest of the Greek tragedians, both the most Attic and the most modern. He is saturated with the new sceptical spirit which was beginning to question old faiths, old traditions, and old customs (see *Pos. Pol.* iii. 239).

His intellectual activity, his subtle speculations, his wide democratic sympathies give a special interest to his writings, though they have in the past often diverted attention from the high artistic value of his work. He has lately, in our own somewhat similar days, been restudied with new results by scholars such as Professors Gilbert Murray and Mr. Verrall. He abandoned the principle of the older tragedians, that all the interest and action should be concentrated in one character and theme, as in the *Prometheus, Agamemnon,* or *Œdipus*; and in many other respects he seems to break away from the canons of Greek tragic art. He is carried away by political feeling against Sparta or Argos; and he digresses into philosophical discussions. But the tenderness and pathos of his best work, the overmastering passion in which the rules of art are

lost, the deep sympathy with every down-trodden or injured thing, give him a title to Aristotle's description—"the most tragic of the poets." He became the master of modern French and Italian dramatists.

He is said to have been deserted by his wife, with whom he was deeply in love. This, perhaps, explains the contrast between his frequent invective against women on the one hand, and, on the other, the marvellous beauty and strength of his female characters.

[F. S. M.]

J. P. Mahaffy: *History of Greek Literature.* A. W. Verrall: *Euripides, the Rationalist.* G. Murray has translated many of the plays into English verse. Aristophanes: *The Frogs*, Eng. trans. by J. H. Frere, by B. Rogers and by G. Murray.

THEOCRITUS, fl. abt. 270-250 B.C.

THEOCRITUS was born either at Kos, or Syracuse. Most of his life was spent at Alexandria, in the court of Ptolemy Philadelphus, and in Sicily, from whence he takes the scene and language of his poems. His extant works consist almost entirely of idylls; "little pictures" of pastoral life thrown into dramatic form. It was an ancient custom for Sicilian shepherds to engage in contests in alternate songs or verses—sometimes of satire, mostly of love. This was the material which Theocritus, keeping and adapting the old hexameter metre, clothed in a literary form for the citizens of Alexandria, wearied of town life, and eager for the breath and beauty of the country.

Previous Greek poets, with the exception of Hesiod, had been interested chiefly in action and character; the beauties of Nature appear but seldom in their poems. Theocritus completely changed this point of view, and made the rustic framework the chief attraction in his pictures. The characters who present the drama of the poems are occasionally only the poet himself and his friends in thin disguise. They discourse of their rival affections, and playfully attack one another in satirical banter. The influence of Theocritus on later poets, especially on Virgil in his *Eclogues*, was very great.

[F. S. M.]

J. P. Mahaffy: *History of Greek Literature.* G. Murray: *Ancient Greek Literature.* C. S. Calverley: *Translated into English Verse.* Andrew Lang: *Translated into English Prose.*

LONGUS, 5th century A.D.

Of LONGUS himself we know nothing except that he was a Byzantian, and lived at the beginning of the 5th century A.D. He was one of the later members of the school of Greek prose romancers which flourished in the third and following centuries, and revived the pastoral idyll of Theocritus in a new form, which was to be definitely established more than a thousand years later in the great school of modern novelists. The romance of Longus is called *Daphnis and*

Chloe, a pastoral tale of the passion and sufferings of two lovers, who, like *Paul* and *Virginia*, their modern counterparts, grow up from childhood together. The other great name in the Byzantian school is Heliodorus, a Christian bishop in the third century, who wrote a story called *Æthiopica*, and gave up his bishopric rather than his art. The *Æthiopica* is a story of adventure ; but the interest of *Daphnis and Chloe* lies in pure affection and simplicity of character. The romance of *Daphnis and Chloe* forms one of the landmarks of literature. It is almost the last product of classical Greek, and is about twelve centuries later than Homer. It is an utterly pagan work of fiction, written in the capital, a century after the official establishment of Christianity. And it is among the earliest specimens of what in modern times is known as the romance of sentiment.

[F. S. M.]

Translated into French by Amyot (16th century); improved and modernised by P. L. Courier. Bohn's Classical Library : *Greek Romances.*

ÆSCHYLUS, b. 525 B.C., d. 456 B.C.

The greatest of the Greek dramatists is also fortunately by far the most historic personage and the most vivid personality amongst all the poets of Greece. We know with sufficient precision the main facts of his life : but we know his inmost spirit, his temper, and his aspirations as clearly as we know those of Dante and of Milton. We recognise in him a genius of a profoundly religious depth, a character of Homeric power and heroism ; a passionate opponent of the old theocratic tyranny, which sought to crush out the free life of the Greek republics, and a zealous defender of the civil and religious institutions of his country.

ÆSCHYLUS, the son of Euphorion, of a noble family, was born at Eleusis, in Attica, in 525. Eleusis is a town twelve miles from Athens, fronting the bay of Salamis, and the rich Thriasian plain. It was one of the original demes of Attica, second in importance to Athens, and was the seat of the famous Eleusinian mysteries, and the worship of Demeter, which persisted throughout the whole period of Polytheism. Both the town and the worship were probably of Oriental foundation, imported by the Phœnicians, and the name of the town may be connected with the Hebrew *Eleph* (*i.e.* the ox—the name of a city of Benjamin standing in a pasture). Euphorion, the father of the poet, is said to have been officially connected with the worship of the great goddess of Nature, and the poet himself is believed to have been from childhood familiarised with what was perhaps the most spiritual of all the Grecian cults.

There is a tale that, as a boy, Dionysus, the god in whose honour the drama was instituted, appeared to him in a dream, and bade him apply himself to tragedy. But it was not until the age of 25 that he made his first appearance in the dramatic contest. In the year 490, at the age of 35, he fought against the Persians at Marathon :

and, with his two brothers, he so much distinguished himself by his heroism that a painting of their deeds was publicly decreed at Athens. He fought also with honour at Artemisium, Salamis, and Platæa: and it is, with the heroism of Cervantes at Lepanto, one of the rare occasions on which one of the great poets of the world took part in one of the decisive compaigns of history.

Æschylus was nearly 40 before he gained his first tragic victory. In 484, he won the prize with the trilogy of which the *Persians* formed part. From thenceforward he gained a succession of thirteen victories. But in 468 he was defeated by his younger and more graceful rival, Sophocles; and in mortification, or perhaps in his repugnance toward the rising tide of democracy, the poet left Athens, and withdrew to the court of Hiero, king of Syracuse. He was now 57; he felt the growing popularity of Sophocles, as Corneille felt that of Racine; he was in open opposition to the political career to which the Athenian people were committed; and he was under imputations of impiety, which then or later took the form of a judicial prosecution.

Æschylus returned to Athens in later years, and his great Orestean trilogy was produced in 458, when the poet was 67. In the *Furies*, he shows himself an ardent opponent of the dominant democratic party; and, apparently on political grounds, he again withdrew to Sicily, where he died at Gela, in B.C. 456, aged 69. His epitaph, said to have been written or directed by himself, ran thus: "Æschylus, son of Euphorion, an Athenian, lies beneath this stone. He died at fertile Gela. Marathon can tell of his tried manhood, and the Persian who there felt his mettle." Not a word about Poetry.

Æschylus produced, it is said, 78 plays, of which but 7 remain, the Orestean trilogy of the *Agamemnon*, the *Libation-bearers*, and the *Furies*, being the sole extant trilogy, or series of three grouped dramas. It is permitted to hold the loss of these 71 tragedies to be the greatest which ancient literature has sustained. The fame of Æschylus, although at Athens it was placed second to that of Sophocles, as at Paris that of Corneille was dimmed by the fame of Racine, and for the same reasons, lasted long after his death. His plays were often represented by his sons and others—an honour extremely rare and almost unique. He was rightly called the "Father of Tragedy." For, in adding a second actor to the original single actor, who recited a narrative to the chorus, Æschylus made true tragedy possible; and when, in imitation of Sophocles, he placed a third actor on the stage simultaneously with the chorus, the dramatic machinery as conceived in Greece was complete. He thus reduced the chorus from the principal to a subsidiary part; and in fact converted the performance from a lyric to a truly dramatic display. He also provided scenery, stage decoration, heroic costume, *cothurnus* or buskin, and the mask; he also organised and himself trained the dances, symmetrical evolutions of the chorus in the *orchestra*, or circle below the stage. Thus, this mighty genius may

be said to have conceived full-grown, and to have created in its completeness, one of the grandest forms of human art.

The style and conceptions of Æschylus were in every way those of his character and life. He was uniformly heroic, earnest, profound, and martial. He called his dramas "scraps from the rich banquet of Homer." He carried to a fault sublimity of diction, originality of phrase, and tremendous intensity of dramatic situation. Cicero calls him a Pythagorean: meaning thereby his deep and pure spiritual earnestness. Æschylus was a stern and passionate supporter of the old aristocratic and conservative party, of the old ceremonies, and the ancient institutions of the city of Solon. He is a stout upholder of reverence for the gods, the pervading power of religion, the sanctity of oaths, the duties of hospitality, and the inviolability of marriage. Intensely military, his dramas abound in terms of war; and in the *Persians* his patriotic enthusiasm rings forth like a trumpet. He is saturated with the idea of the revolt of the free commonwealths against the theocratic depotism of Asia. In the *Prometheus* he idealises the Revolt of Man from the pressure of the priestly caste, and the martyrdom of those who led the way to his emancipation. But, if the *Prometheus* be the first poem of Æschylus, the *Agamemnon* must be counted as his first tragedy—perhaps, as pure tragedy, the finest ever produced, in massive intensity, in unity of impression, and in statuesque sublimity of form.

It may be doubted if Dante or Shakespeare has surpassed Æschylus or even equalled him, in the art of bringing before us ideal beings so imposing, so awful, and so vivid; or, in so completely transporting us into a world of a weird imagery, real and yet superhuman. The occasional monotony of his stately manner, the harshness of his compound epithets, and the not infrequent tendency to extravagance and even bombast, are slight defects among such grand qualities. Aristophanes painted the poet to the life, and did ample justice both to his unequalled greatness as a poet, and to his noble aim as a patriot and a teacher. For, as Comte has truly said, Æschylus was the great spiritual power of his age, the poetic voice of Greece in the one sublime epoch of her whole history. Aristophanes, in his inimitable comedy, the *Frogs*, has brought out the heroic temper of the man, the proud and stately self-will, the fiery imagination, the burning faith in high and pure ideals, the avalanche of great thoughts, even the torrent of superabundant imagery which the poet threw into his work.

Æschylus was more than poet. His inner purpose was that of Isaiah and Ezekiel, of Dante and of Milton: the presentment of the great problem of human life, the sense of an overruling Providence, the moral greatness and force of the just man, the ruin and shame ultimately in store for the unjust, the inevitable retribution that awaits crime, the inheritance of evil, the grandeur of virtue, courage, purity and good faith. It was Aristotle's definition of Tragedy that it "purified the soul by pity and terror." Its duty

was to rouse the spirit from all that is sordid, torpid, and mean, by touching the sympathies to the quick, by calling out the dormant feeling of interest in our fellow-men, pain at their sufferings, and enthusiasm for their heroism ; by rousing the self-contented nature, fattened with good things, to a consciousness of the tremendous issues for good or evil with which human life is surrounded. In this task no Hebrew prophet, no mediæval preacher, has ever surpassed Æschylus. [F. H.]

J. A. Symonds : *Greek Poets.* J. P. Mahaffy : *History of Greek Literature ; Social Life in Greece.* F. A. Paley : *Tragedies ; edited with commentary.* E. D. A. Morshead : *House of Atreus, translation of Oresteia.* Miss Swanwick : *Translation in verse.* P. Laffitte : *Grands Types,* ii. 11. *Pos. Pol.* iii. 238-9.

SCOPAS, fl. abt. 400-350 B.C.

SCOPAS, a native of Paros, one of the Cyclades group, then subject to Athens, belonged to a family of artists in that island. With his great rival Praxiteles, he is the chief of the later Attic school of sculptors, being nearly a century later than Phidias, the master of the early Attic school. He was an architect as well as a sculptor, and the earliest certain notice of him is, that he built the great temple of Athena at Tegea, about 359 B.C. We also hear of him at work on the temple of Artemis at Ephesus, and the Mausoleum at Halicarnassus. About 377 B.C., Scopas took up his residence at Athens, where he worked for some 20 or 30 years as a sculptor in marble.

His subjects were of the most varied kind, largely occupied with the more romantic sides of the mythology, or with the subordinate deities, and were marked, almost without exception, by great animation, invention, pathos, and passion. He loved to mould Mænads, Bacchanals, combats of Amazons, Love, Desire and Passion, in their most poetic forms, Nereids and sea-monsters. No extant works can with certainty be ascribed to his hand. But some Mænads, Nereids, and Tritons are supposed to be copies from his works. There is good ground to believe the reliefs from the Mausoleum, of which some are in the British Museum, representing combats of Greeks and Amazons, were from his designs ; and the better opinion seems to be that the grand group of Niobe and her daughters, copies of which exist at Florence, was the conception of Scopas rather than of Praxiteles.

As a sculptor, Scopas is remarkable for the boldness, passion, and fertility of his creative genius. In rapidity of movement, ingenuity of composition, and intensity of feeling, he is without a rival. He is the most lyrical of all the sculptors, and the one whose range is the widest, from frenzied rapture to the most tender and dreamy grace. He is marked off from his mighty predecessor, Phidias, as wanting his sublime dignity and Olympian repose. He is marked off from his great rival Praxiteles, as having a deeper and wider inspiration than that of sensuous beauty. [F. H.]

See under PHIDIAS.

ZEUXIS, fl. abt. 430-400 B.C.

The date, the birth-place, and the events in the life of ZEUXIS were entirely doubtful even in Roman times. It is probable that he was born, about 455 B.C., in the Heracleia, situated on the Black Sea; that he studied painting at Ephesus, as he is said to have belonged to the Ionian school of painting, which was a realistic type, tending to sensual charm. He probably removed to Athens soon after the beginning of the Peloponnesian war, about 425 B.C., where he studied under Apollodorus, the great master of chiaroscuro. At this date the great works of Phidias were complete, and Athens was at the zenith of her artistic splendour. For Archelaus, king of Macedonia, Zeuxis painted (about 410 B.C.) a series of mural paintings in the royal palace of Pella. He subsequently took up his residence in Magna Græcia, in Italy, and executed for the people of Croton his famous masterpiece of Helen; for which, the story runs, he selected as his models the five most beautiful virgins of the city. He also painted in Sicily, where many of his works were found in Roman times. His works, which were mostly on panel, were scattered, by plunder or sale, over the ancient world, and, though some seem to have been extant in the age of Cicero and Pliny, it is doubtful if any survived in the second century of the Christian era.

By common consent Zeuxis was, with Parrhasius, his younger rival, the most eminent master of ancient painting. Although he worked at Athens when the glory of the Parthenon was at its height, his art had much more kinship with that of Praxiteles than that of Phidias. He is specially celebrated for the marvellous power with which he imitated all natural objects, and for the extreme delicacy of his treatment. Like Praxiteles, he was famed for the grace with which he painted the female form, which he endowed with every charm except elevation of character. He also exhibited great dramatic power, and loved to represent scenes of action, pathos, and emotion. His *Infant Hercules*, his *Alcmena*, and his *Female Centaur*, were famous among his works, with many subjects, we are told, of a new and strange character. The anecdotes attached to his name were perhaps chiefly the mere invention of rhetoricians and epigrammatists. His influence over ancient art was widespread and lasting, and the voice of antiquity concurs in representing him as the first to carry the art of painting to the full limit of its resources. [F. H.]

Winkelmann: *Ancient Art*, iii. bk. vi. Smith: *Dictionary of Antiquities: Pictura.*

ICTINUS, fl. abt. 450-430 B.C.

Of ICTINUS we know almost nothing, except that he was the architect of the Parthenon, and of an almost equally celebrated temple of Apollo, near Bassæ in Arcadia. He must have been the con-

temporary of Pericles, Phidias, and Sophocles. His great work, the Parthenon, was erected between 448-438 B.C., under the administration of Pericles, on the site of the temple of Athene Parthenos, or the Virgin, destroyed by Xerxes in the Persian war. It was by universal consent the most perfect example of a Greek temple. Down to 1687 it remained almost entire. In that year the centre was destroyed by an explosion in the siege by the Venetians, during their war with the Turks.

The temple stood on the highest point of the Acropolis, clear of the walls, Propylæa, and the other temples. It was 101 feet in breadth, by 228 in length, being 66 feet to the top of the pediment ; it was surrounded by 46 columns, each 34 feet high, and was externally throughout of the Doric order. The pediments at the eastern and western ends were filled with 50 colossal figures ; the 92 metopes, between the triglyphs above the architrave of the external columns, and the frieze, 523 feet long, running round the internal walls under the portico, were all filled with sculptures under the direction of Phidias. When complete, it was the great art-centre and art-school of the ancient world ; and, even in its ruin we can recognise it as a faultless embodiment of the highest conceptions of Greek architecture. [F. H.]

Smith : *Dictionary of Geography : Athens.* Michaelis : *Parthenon.* F. C. Penrose : *Principles of Athenian Architecture.* And see under PHIDIAS.

PRAXITELES, fl. abt. 380-340 B.C.

PRAXITELES, probably an Athenian of a family of artists, is usually regarded, both by ancient and modern critics, as the chief name of the later Attic school, of which he and Scopas were the rival heads. He is rather younger than Scopas, who was his master, and quite a century later than Phidias. He lived and worked mainly at Athens ; but his works were scattered in prodigious numbers over the whole Greek world. His principal subjects are the younger and more beautiful of the deities, especially Apollo, Artemis, Dionysus, and Aphrodite. With one exception, the *Hermes* of Olympia, we have nothing that can be certainly attributed to his hand. But many of the ancients attributed to him the Niobe group. And there is little doubt that we have copies of his work in the exquisite *Apollo Sauroctonos*, the *Apollino*, the *Satyr* or *Faun* of the Capitol, the *Silenus* and *Fauns* at Rome and Florence.

The most famous work of Praxiteles, the *Venus of Cnidos*, was one of the great wonders of the ancient world, and created an entirely new epoch in art. Its general idea is preserved to us, partly by the *Venus of* the Capitol, of Munich, of the Tribune, and partly by coins. It was the subject of many epigrams, anecdotes, and descriptions ; it became the object of pilgrimages to the peninsula ; and King Nicomedes is said to have offered the Cnidians to purchase it at the price of their whole national debt. It was allowed to be

the most surpassing representation of the female form. It was said to have been studied from Phryne, the famous *hetaira*, whom Praxiteles passionately loved. Though some attributed the innovation to Scopas, the *Aphrodite of Cnidos* is the first presentation of a goddess in complete nudity of which we have certain and exact particulars. The extraordinary beauty of the statue, of the finest Parian marble, and the new scope that it afforded to art, may be said to have revolutionised art, and to have opened the way to make the later Greek sculpture largely consist of representations of the nude form of woman.

Praxiteles is charged with having debased the art of later Greece by confining it to the sensual image of physical beauty. It is true that his ideal is always the perfection of youthful beauty, carried in the case of the *Apollos* and the *Fauns* to a somewhat unmanly sweetness and grace. But there is no reason to suppose that in his Cnidian *Aphrodite* there was anything but ideal purity and exquisite refinement. And in the *Hermes*, recently discovered at Olympia, and with great confidence attributed to the very hand of Praxiteles, we have one of the noblest types of manly beauty which time has spared us from the past. [F. H.]

See under PHIDIAS.

LYSIPPUS, fl. abt. 360-320 B.C.

LYSIPPUS of Sicyon, in the Peloponnese, was a contemporary of Alexander the Great, who made him his court sculptor, decreeing that no one should paint his portrait but Apelles, and no one should make his statue but Lysippus. He was a self-taught workman in bronze ; who, by his energy, industry, and original genius became the most famous statuary in bronze of the ancient world. Like all the Peloponnesian school, Lysippus did not aim at ideal beauty, or grace of expression, but excelled in force, realism, and striking personality. His works were all in bronze, and are said to have amounted to 1,500 in number. They represented Alexander and his generals in various characters, Hercules in many aspects, and celebrated athletes of the most naturalistic type.

Lysippus was the sculptor not of Athene, like Phidias, nor of Aphrodite, like Praxiteles, but pre-eminently of soldiers and athletes. Two of his works at Tarentum were colossal, the *Zeus*, 60 feet in height, and the *Hercules*, afterwards removed to Rome. Of the consummate truth and life of his athletes we have an extant specimen in the beautiful work in the Vatican, an athlete using the strigil, clearly a fine marble copy of the famous bronze which Agrippa placed in his baths. Of his power in portraits, the busts imitated from his Alexander give us an adequate conception. It is a melancholy thought that, like almost all the bronze work of antiquity, every fragment of the genuine products of Lysippus has entirely disappeared from the world. [F. H.]

See under PHIDIAS.

APELLES, fl. abt. 340-305 B.C.

APELLES, who was the contemporary of Alexander the Great, and his favourite, nearly a hundred years later than Zeuxis, was the most popular of all the painters of antiquity. He was a native, probably, of Colophon in Asia Minor; and he seems, like Zeuxis, to have studied first at Ephesus, and to have belonged to the Ionian school of painting. He afterwards passed into Greece proper, where he studied composition in a more scientific school. The greater part of his life was passed in the service and at the court of Philip of Macedon, and then of Alexander. For them he painted an immense number of pictures, and also their portraits, Alexander allowing no one else to paint him. He probably accompanied Alexander into Asia. Whilst painting the portrait of Campaspe, Alexander's favourite concubine, Apelles fell in love with her; and, according to the story, the king surrendered her to the painter. She is said to have been his model for the *Venus Rising from the Sea*—his most celebrated picture. After the death of Alexander, 323 B.C., Apelles seems to have travelled over Western Asia, and ultimately reached Egypt, where he was honourably received by Ptolemy.

Apelles was especially famed for his skill as a portrait painter. He painted an immense number of portraits of Alexander, and of his generals. He is also celebrated for the immense industry and perfection with which he elaborated the technical part of his work, and for the colouring. He is said to have invented a process of glazing which gave tone and mellowness to his works. They were mainly on panel, easel pictures of single figures, small groups, with great care given to all the accessories. His most famous work, the *Venus Rising from the Sea*, represented the goddess wringing her hair, the drops of water forming a transparent veil round her form. It was afterwards placed by Augustus in the temple dedicated to Julius Cæsar at Rome. In his mastery over portrait painting, in the harmony of his colouring, in his skill in the nude, and in his prevailing characteristic of grace and charm with perfection of technical execution, he may be well called the Titian of the ancient world. [F. H.]

Smith: *Dictionary of Antiquities: Pictura.*

PHIDIAS, fl. abt. 460-432 B.C.

PHEIDIAS, by common consent the greatest sculptor of antiquity, was an Athenian, the son of Charmides, of a family of artists, and exactly a contemporary of Pericles and of Sophocles. The date of his birth is unknown, but it was sometime before the battle of Marathon, 490 B.C. His death nearly coincided with the outbreak of the Peloponnesian war in 431. His boyhood and youth were passed in the midst of the great struggle with the Persians and during the splendid career of Cimon in founding an Athenian empire.

Beginning life as a painter, he studied the art of sculpture under Ageladas, a teacher of the Argive school, and was employed on the immense series of works undertaken by Cimon to rebuild and adorn Athens after its destruction by Xerxes.

He first comes into notice as a sculptor about 470 B.C., a little before the time when Pericles rose into prominence as a statesman. It was probably about 460 B.C. that his reputation was fully established by the colossal *Athene Promachos*, a statue of bronze which rose to a height of 70 feet from the top of the Acropolis. In 444 B.C. Pericles became the sole administrator at Athens, and so continued until his death, 429 B.C. "In name," says Thucydides, "it was a democracy, but in reality a government by the first man." An intimate alliance was formed between the greatest statesman and the greatest artist of Athens. Phidias became the close friend of Pericles, and was appointed director-in-chief of all the public works. The chief of these was the Parthenon, erected between 448-438 (see ICTINUS). On the immense series of sculptures with which it was filled, and especially on the statue of Athene, the chief glory of Athens, Phidias was employed for some ten years, in the full maturity of his genius. The enormous number of the figures in the Parthenon, probably exceeding 500, of which 50 are colossal, and the size and complexity of the Athene, which was of gold, ivory, wood, and precious stones, standing 40 feet in height, make it impossible that these vast works could have been executed within ten years by the hand of a single artist. But Phidias is universally spoken of as the designer and presiding genius of the entire decoration ; and, although some of the metopes are probably of an earlier school, the colossal groups of the pediments and the whole of the frieze have the stamp of one master mind.

The enemies of Pericles, not venturing on a direct attack, sought to ruin him through his beloved Aspasia, and his friend Phidias. The great sculptor was accused of peculation in having appropriated part of the gold intrusted to him for the statue of Athene in the Parthenon. He was able to prove that he had used the full quantity (44 talents weight of gold) ; for the plates on the statue had been made movable. He was subsequently charged with impiety, for having introduced his own portrait and that of Pericles into the statue of the goddess. There is some evidence that this was a fact. Recent research detects in a late and rude copy of the shield of Athene the portrait of Phidias himself, in a head unquestionably taken from life, and wholly unlike any possible ideal type. He is "a bald-headed old man," as described by Plutarch, apparently of about 60, with an unsymmetrical head of the Socratic cast. This may represent a traditional portrait of the sculptor.

Under or in fear of condemnation, he fled from Athens. He was received with great honour by the Eleans, and seems to have transferred to Elis his school and his pupils. He worked at Elis apparently from 437-433 B.C. on the great temple of Zeus at Olympia, where

he made the gold and ivory colossal statue of Zeus, the wonder of antiquity, and an even greater and more imposing work than the Athene of the Parthenon. He seems to have died in 432 B.C., in prison, on the second charge of impiety, though by some accounts he was condemned and executed by the people of Elis.

The principal works of Phidias, besides the sculptures of the Parthenon, were the three colossal figures: the bronze *Athene Promachos* of the Acropolis, the outline of which is preserved to us on coins, and the two *chryselephantine* statues, that of *Athene* inside the Parthenon, and that of *Zeus* at Olympia. Of the former we have the general outline in existing statuettes, and of the latter we have indications on coins, and busts supposed to be imitated. Of the effect of this extraordinary form of art, which Phidias is said to have invented, one which could arise only out of an almost idolatrous mythology, we can have but a vague conception. In these chryselephantine statues the figure was made of a framework of hard wood, cypress or ebony. On this were superimposed plates of ivory and gold—the whole of the uncovered parts of the figures being of ivory, and the robes of gold; precious stones, chasing, and various metals being also employed. The Olympian Zeus was regarded as one of the wonders of the world; it survived for some seven or eight centuries, well into the Christian period; and it was uniformly spoken of with enthusiasm by the ancients who saw it. However much so complex and artificial a mass differs from our conception of plastic art, we cannot doubt the unerring genius of Phidias, and the unanimous verdict of antiquity; and we are forced to believe that these stupendous figures were the most imposing and beautiful ever produced by man.

The other principal works of Phidias were the statues of the Parthenon, of which the ruined fragments, known as the Elgin Marbles, in the British Museum, present us with a basis of conception. Although we are unable to say that any single work is from the hand of the sculptor himself, it has never been doubted that the colossal figures of the two pediments, and the fragments of the frieze, spring directly from the brain of the master. The world is agreed that they exhibit every quality of the sculptor's art in absolute perfection. Technical execution, sublimity of conception, beauty, truth, dignity, fitness, unerring judgment, fertility of invention, and mastery of composition are all displayed in equal power, and in the highest conceivable perfection. If there be one quality which impresses the beholder first as well as last, it is ideal beauty and grandeur. Phidias is said to have declared that he drew his ideal of the gods from the description of Homer. And it is in the Homeric quality of serene majesty and simple beauty that his art excels.

His work is as free as that of Homer himself from any taint of exaggeration, affectation, false emphasis, or sensuousness. It is always at once sublime and perfect. It was a saying of the ancients that "the hand of Phidias alone of men could make the image

of the gods." With this power of ideal majesty, he combined a full technical mastery over every form of plastic art. He himself claimed no other superiority except that of "accuracy of work." We are told that his skill was equally surpassing in representing the grasshopper and the bee as the gods of Olympus. He was a consummate master in marble, bronze, ivory, gold, or ebony; in sculpture, in relief, in engraving, in chasing, in enamelling; in colossal statues, and in the most delicate ornamentation of a moulding or a fringe. He had working under him, we are told, architects, sculptors, masons, bronze-founders, goldsmiths, ivory carvers, chasers, enamellers, and dyers. His genius was able to bring the work of all into perfect harmony.

His influence over all subsequent art was almost equal to that of Homer in poetry. Whilst all subsequent masters and schools had the defects of their qualities, the ancient and the modern worlds have never suggested a shortcoming in Phidias, or a single quality in which he was weak. Consummate judgment and unerring taste control the most sublime and lovely visions of beauty. It is significant that, whilst his representations of the nude surpass in knowledge and technical mastery any other known, we have no single extant example in which he presented the female form, even partially undraped. His Venus on the frieze, like all his other goddesses, is completely draped. Nor must it be forgotten that we have no single statue by Phidias, in the true sense of the word. The Elgin Marbles are all, without exception, architectural decorations. Even the so-called *Theseus* and the *River God*, sublime as they are, are the ornaments of a group placed in a pediment, 50 feet above the spectator; and, consequently, like the figures in the metopes or the frieze, they are entirely subordinated to the conditions of the architect.

Nor are we able to judge whether the great artist was equal to present human expression and emotion with the same power that he has presented the human form. No single head has survived to us uninjured of any of the larger figures that we can certainly ascribe to Phidias. But in the extant busts of Jupiter we may recognise faint copies of the majesty which he could give to the King of the Gods. We cannot assume that even Michael Angelo or Raphael surpassed Phidias in power of expression; and they assuredly did not surpass him in invention, in knowledge, or in sublime and serene beauty. There is every reason to believe that Phidias was the most perfect and complete genius who ever appeared in the arts of form: the one artist in whom we find nothing wanting, and of whom we know no failure. [F. H.]

Smith: *Biograph. Dictionary: Phidias*; and *Dictionary of Antiquities: Statuaria Ars.* Plutarch: *Life of Pericles.* A. S. Murray: *History of Greek Sculpture*, vol. ii. E. A. Gardner: *Handbook to Greek Sculpture.* L. E. Upcott: *An Introduction to Greek Sculpture.* See also under ICTINUS. P. Laffitte: *Grands Types*, ii. 11. *Pos. Pol.* iii. 235, 240.

ÆSOP, possibly the 6th century B.C.

ÆSOP is the reputed author of a collection of moral fables, which, in various forms, has had a wide vogue and great influence in Europe. About the man we know absolutely nothing. The fables were shown by Bentley to be probably of Indian or Persian origin. The form of imagination which gives speech and other human characteristics to the lower animals is common and congenial to the early stages of thought, but it appears very rarely in Greek literature. We have an instance in both Hesiod and Æschylus, and in one or two other early Greek poets, but not elsewhere. In placing Æsop at the head of the series of writers of whom Aristophanes is chief, we may recognise the fact that this "beast epic" is the earliest form of that humorous description of the faults of human life which, in its fully developed shape, we call "comedy" (see *Pos. Pol.* iii. 234). The *Fables of Æsop* were versified in later years by Phædrus in Latin, and by Babrius in Greek. But it was another writer, now almost forgotten, who kept these fables alive during the Middle Ages, enjoying for many centuries a celebrity second only to Virgil—the half-barbarous elegiac fabulist, Avianus. [F. S. M.]

J. P. Mahaffy: *History of Greek Literature*. J. Jacobs: *The Fables of Æsop* (including the first English text as printed in 1484).

PILPAY.

The name of Pilpay or BIDPAI is entirely unknown to the Hindus. The Fables and Proverbs which pass under his name consist mainly of the *Pantcha Santra*, or Five Sections, and the *Hitopadesa*, or Friendly Instructor, which were translated into Persian in the fifth century A.D. They were afterwards translated into Arabic; and in 1709 the Persian version was translated into French under the title of *Les Conseils et les Maximes de Pilpay*, which appear in English as *The Instructive and Entertaining Fables of Pilpay*. The name of Pilpay appears to have been first attributed to the collection in Persia, the reputed Hindoo author being Vishnu-Sarma.

These fables are the earliest collection in the world, and greatly surpass in humour and in variety of matter and of lesson the *Fables of Æsop*. There is at the same time similarity enough between the two collections to make us believe in a common source. The Sanskrit fables are supposed to be told by their author for the education of the children of a certain rajah, and form a wonderfully interconnected series. The animals introduced relate other stories to one another, and deliver many proverbs and practical moral precepts, which form a much more important part of this collection of fables than of any other. [F. S. M.]

Charles Wilkins: *English Translations of the Sanskrit Fables*, 1787. Selection in Henry Morley's "Universal Library." *Transactions R. Asiat. Soc.* i. 155.

PLAUTUS (*Titus Maccius Plautus*), abt. 254-184 B.C.

PLAUTUS was born in Umbria about the middle of the third century B.C. He is said by some to have been a slave and afterwards a stage-carpenter. But these may be stories invented to account for his knowledge of slave character and his connection, though a man of humble origin, with the theatre. He produced his first play in 224 B.C., and wrote without a rival till his death forty years later. Twenty of his plays remain.

Like his successors, Cæcilius and Terence, he was largely indebted to Menander and the later comedians of Athens, though he is probably more original than either of them. His method of borrowing in some points resembles that of Shakespeare himself. Characters with Greek names, and nominally living in Greek cities, act as Romans, and refer to Roman customs as familiar things and to the Greeks as foreigners. For this reason the plays of Plautus are much more valuable than those of Terence as pictures of Roman life. In one play, the *Pœnulus*, or Young Carthaginian, written at the time of the second Punic War, we have a unique picture of the Roman enemies drawn by the popular Roman poet; and it is very fairly and generously drawn. Plautus, like Terence, draws only on the recognised types of the later Athenian comedy—the stern or indulgent father, the spendthrift son, the clever and faithful slave, and the shameless parasite—who were all classified and fitted with a characteristic mask. Considering these limits, the genius of Plautus for developing amusing situations and lively dialogue is very great and has been appreciated—in adaptations and imitations—by Shakespeare, Molière, Fielding, and many other dramatists. [F. S. M.]

W. Y. Sellar: *Roman Poets of the Republic.* Eng. trans. in Loeb Classics (proceeding).

TERENCE (*Publius Terentius Afer*), b. 192 B.C., d. 158 B.C.

TERENCE was born in Africa, and in his youth was brought to Rome as a slave. The name of his family is unknown, but when he was set free he took that of Terentius, from his master Terentius Lucanus. He began to write in the year 166 B.C., and continued with increasing success till his death.

Owing to the loss of Menander's plays, the later, or new comedy of the Greeks is known to us only by the plays of Plautus and Terence; and superior as Plautus was in brightness and originality, the dignity of Terence's style, and the purity of his Latin, so strange in an African slave, have made him for the moderns the chief representative of the ancient comedy of private life. Hence his enormous influence in literature; for Cervantes, Shakespeare, and Molière have all been indebted to him. Such plays as *Les Fourberies de Scapin* breathe the very spirit of the ancient comedy.

Terence took the plots of his six plays from the Greek, and much of his work is merely translation, so that it is difficult to tell how far its merits are his own or Menander's ; but one of his most successful characters, the insolent parasite, Phormio, who is yet ever ready, faithful, and undaunted in the service of his friends, comes in a play taken from a very inferior dramatist. His plots and characters are drawn from a narrow and somewhat conventional field. The troubles of young men in love, and their efforts to outwit their elders, with the aid of clever slaves and parasites, form the general groundwork ; and a favourite way out of the difficulties is the discovery that the girl in question has been lost or stolen in childhood, and is really of a most respectable family. The slaves of Terence are a wonderful study to those who reflect on the story of his life. They are always on the side of youth and pleasure, full of impudence and resource, often with a fidelity to their chosen part, unshaken even by the sound of the whip and the chains which we hear behind all. The comedy of the ancients did not allow of characters showing the extremes of heroism or baseness, but in Terence all are marked by some redeeming qualities. The suspicious fathers and dissolute sons, crafty slaves and overbearing masters, braggarts, parasites, and courtesans have all some share of kindly human feeling and good fellowship. The words of Terence so often quoted may stand as the very essence of his moral teaching : "*Homo sum, humani nihil a me alienum puto*"—I am a man ; and think there is nothing human but claims my sympathies."

[S. H. S.]

G. Simcox : *History of Latin Literature*. W. Y. Sellar : *Roman Poets of the Republic*
Eng. prose trans. in Loeb classics.

MENANDER, b. 342 B.C., d. 291 B.C.

MENANDER is the greatest name in the Athenian comedy of private life, which grew up with the decline of the power and public life of Athens. He was an Athenian of the age of Demetrius and the successors of Alexander, the son of a general who was a friend of Demosthenes. He was the contemporary, friend, and follower of Theophrastus and Epicurus, and his comedies are marked by the insight into character of the one, and the love of ease, suavity, and grace inculcated by the other. Though he wrote more than 100 plays, only 8 were crowned ; but the verdict of later times placed him above all his rivals. He was drowned while swimming in the harbour of Piræus, and was buried near the tomb of Euripides.

Though none of his plays remain in their entirety, several hundred lines or short passages are preserved, which justify his high reputation. And the imaginary letters of Menander, written by Alciphron, illustrate the lights and shades of his character with strange delicacy and genius. But he is now known chiefly by the plays of Plautus and Terence, some of which were little more than translations of

his own. Through them he has exercised a profound influence on the literature of modern Europe. By the general judgment he was in every way superior to his Latin followers, Terence being spoken of as especially inferior to him in brightness and wit. Cæsar calls Terence a mutilated Menander (*dimidiatus*, a half-and-half Menander). [F. S. M.]

J. P. Mahaffy: *History of Greek Literature.* J. A. Symonds: *Studies of the Greek Poets.* Eng. trans. in preparation for Loeb classics. Macaulay compares Menander to Addison, whom he resembles in quiet wit, gentleness, and knowledge of the world. But Menander added to this an undercurrent of enthusiasm for Athens and Attic culture.

PHÆDRUS, 1st Century A.D.

PHAEDRUS was of Thracian or Macedonian origin, and was probably brought as a captive to Rome in the time of Julius Cæsar. He is said to have been a slave of the Emperor Augustus, but rose to freedom and fame as a writer of metrical fables. He lived through the reign of Tiberius, to whom he refers in his poems. Sejanus, the powerful minister of Tiberius, was his bitter and persistent enemy. His poems are mainly versions of Æsopian fables, with a few original and contemporary stories. He presented to the Roman world that form of imaginative literature which Æsop had made familiar to the Greeks. His importance was greatest in the middle ages; when the fables of Romulus and other collections were current, based originally on his. The name of Phædrus, however, was unknown; and the authentic fables were not discovered till the 16th century. [F. S. M.]

G. Simcox: *History of Latin Literature*, i. 374.

JUVENAL, end of the 1st Century A.D.

The facts of JUVENAL'S life, including the date of his birth and death, are quite uncertain. All we know of him is that he wrote towards the end of the first century A.D.; was sent against his will to Egypt, and lived for some time at Aquinum in Latium. He was the most powerful of the Roman satirists, and poured his invective on the social vices of the early Empire. Underlying all his satire is a strong dislike of the imperial system, and a regret for the loss of the manners and constitution of Republican Rome, when Roman citizens formed a proud and narrow corporation, with simple tastes and warlike habits. He does not, therefore, appreciate the beneficent aspect of the Roman Empire, but dwells on the evils and abuses introduced by foreign customs and by a state of peace without industrial pursuits. He satirises the crowd of clever and unscrupulous Greeks who were able and ready to do anything for pay. He describes the monstrous growth of luxury of all kinds, the worship of money and material goods, the degrada-

tion of ancient families, and the arrogance and display of wealthy upstarts. He deplores the spread of novel and degrading superstitions, especially among women. Above all, he dwells on the dissolution of old social ties, the change in the character of women, the corruption of the young, the decay of the family. In his later satires Juvenal combines, with his vivid and often personal invective, many passages of great beauty describing the ideal life of virtue and simple manners. Several of the satires have been translated by Dryden, and two of them are imitated by Dr. Johnson in his *London* and *The Vanity of Human Wishes*. [F. S. M.]

G. Simcox: *History of Latin Literature*, ii. 113. W. Gifford: *Translated into English Verse*. Eng. prose trans. in Loeb classics.

LUCIAN, b. 120 A.D., d. 200 A.D. (?)

LUCIAN was born A.D. 120, at Samosata, on the Euphrates. His father, a poor man, intended him to become a stone-mason, and carver of the images of Hermes, which were common at the street corners. He tells us how he disliked this work, and how he managed to get a literary education in spite of it. He composed orations, practised as an advocate, and gave lectures on public speaking till his 40th year. He then settled down at Athens, and devoted himself to the study of philosophy and literary work. A large number of his works remain ; they consist of satires on the Greek theology, on the philosophers, and on society generally.

When we compare Lucian with the two satirists—Juvenal and Aristophanes—between whom he stands in the calendar, we are struck by his more modern spirit. He is always humorous and never bitter, and he has the modern love for an imaginary world. He draws the characters of the old mythology, and relates their legends with the complacent humour of one who is completely emancipated from the old beliefs, and who yet retains an affection for them. In his stories of imaginary adventure, his easy diction and the wealth of his fancy remind us of the most literary of modern novelists. In his social satires he is sometimes directly indebted to Juvenal, but, unlike him, he is never personal in his attacks. He takes a strong interest in all sides of human life ; but shows the favourite bent of his mind by a constant recurrence to philosophers and theological questions. In the *Dialogues of the Dead*, where the wit and liveliness of his dialogue and his vivid drawing of character are seen at their best, we find many deep and true thoughts on the nature of death, the vanity of personal pride and wealth, the terrors of an evil conscience, and the reward of a good life in the permanence of its results and in the memory of men. [F. S. M.]

W. L. Collins: *Ancient Classics Series: Lucian*. C. S. Jerram: *Luciani Vera Historia* (Clarendon Press Series), Introduction. H. W. and F. G. Fowler: *The Works of Lucian*, 4 vols. Eng. trans. in Loeb classics (preceding)

ARISTOPHANES, b. 444 B.C., d. 380 B.C. (?)

Of the great comic poet of antiquity, though he has left us a vivid picture of his own personality, of what he loved, and what he despised, we know almost nothing with any certainty. He flourished about half a century after the great epoch of Athenian glory, and has given us immortal sketches of the Republic as it hastened to its speedy decline. Of his life we know little more than this.—

ARISTOPHANES, the son of Philippus, was probably an Athenian, born about 444 B.C. He was a lover of pleasure and of society, and is introduced as one of the brilliant revellers in Plato's *Banquet*. He won a prize with his first comedy, in 427 B.C., soon after the opening of the Peloponnesian war, when he was still a lad under age. He continued to exhibit comedies over a period of 40 years ; it is said that he produced 54, of which 11 only survive. He left three sons, all comic poets : and he died about 380 B.C., when Athens had lost all political importance, and all her great men except Plato and his followers.

Aristophanes was the unrivalled master of the *Old Comedy*, *i.e.* direct political, personal, and social satire ; and in that sphere, he claimed a licence of caricature, buffoonery, and burlesque unequalled in the history of lampoon, ancient or modern. It was a time of intense activity and fierce struggle in the world of ideas as well as of politics. The poet, a passionate believer in the old heroes and the ancient institutions and manners of Athens, attacked in a series of satires the demagogues, the war politicians, the dandies, the quacks, the pettifoggers, the innovators in philosophy, politics, manners, and poetry. He is an intense and unscrupulous partisan, an incorrigible mocker of gods and men, and a bold assertor of the "good cause," and the "old times." He exhibits, with all his party acrimony and his extravagant ribaldry, a sound political sense, a conscientious conservatism, and a courageous love for what is just and true. In the downward race of a fickle democracy, he could be hardly anything but reactionary : and in an age hurrying into the artificial sophistry and the rhetorical trifling which so soon absorbed Athenian intellect, he makes blind onslaughts on social reformers like Socrates, and masters of tenderness like Euripides. Cleon the demagogue, Euripides the sentimentalist, and Socrates the type of the critical sophist, are the constant objects of his ridicule. In all these attacks there is much that is blind, not a little that is unfair. But to an earnest conservative like the poet, Cleon embodied the follies and conceit of democracy ; Euripides, the taste for morbid rhetoric in poetry ; and Socrates, the Rousseauism of antiquity, which subjected every established belief to a metaphysical criticism.

Democracy, metaphysics, and romanticism are the constant objects of his satire. But Aristophanes seems in his plays to have deliberately constituted himself moral censor of his time :—at once

the Boileau, the Swift, the Dr. Johnson, the Carlyle, in the decline and fall of Athens. In the lost *Banquetters*, his first play, he pleads for the old and manly education of youth. In the lost *Babylonians* he attacks the system of appointing to offices by lot. Three plays, the *Acharnians*, the *Peace*, and the *Lysistrata*, are devoted to pleading for peace, during the horrors of the Peloponnesian war. In the *Knights*, he gives his immortal parody of the demagogic arts of Cleon. As no one dared to represent the powerful orator, Aristophanes smeared his face with wine-lees, and boldly performed the part of Cleon himself. In the *Clouds*, Socrates is attacked as the archsophist, who corrupts youth by the new-fangled system developed in his *Notion-shop*. The *Wasps* is an attack on the partisan corruption of the law-courts. In the *Birds*, perhaps the best of all Aristophanes' comedies, if not the best of all extant burlesques, where the Birds resolve in council to build a new city in the sky, to be called *Cloud-cuckoo-town*, the poet was satirising the extravagant schemes of imperial aggrandisement which led to the ruin of Athens. In the *Frogs*, he brings Æschylus and Euripides into rival contest, and covers the latter with his ridicule and scorn. In the *Plutus* (*Wealth*), and the *Women in Council*, he takes up the questions of new social panaceas, the equalisation of wealth, and the political equality of women. Never did poet treat satire more seriously and more systematically, as a weapon to combat folly and vice, and to teach justice and moral truth. Aristophanes is not always right ; but he always has a moral purpose.

That, as poet and satirist, he showed every quality in perfection, the ancients and the moderns are agreed. His inexhaustible wit, his fantastic imagination, his rollicking humour, his exquisite visions of fairy-land, have never been equalled but by Shakespeare : they two only of poets have raised burlesque into the truly sublime. There are, moreover, in the choruses of these comedies, passages of lyric beauty and power which Pindar might envy ; and in mastery of the Attic tongue, Sophocles and Plato alone can vie with Aristophanes. Unfortunately nearly all his plays are polluted with a coarseness and obscene ribaldry which have no parallel in ancient or modern literature. But these crapulous and priapic indecencies of his belong not so much to the man as to the age ; and indeed they are part of the ancient rites of the god of revelry, from which comedy sprang. The nakedness and filthiness of these primitive survivals of nature-worship are rather disgusting than immoral. And Aristophanes, at least, converted a display of obsolete ribaldry to a lofty moral and social end.

His comedies combined all that, in modern times, is aimed at by political journalism, pictorial caricatures, poetical satires, comic opera and pantomime. If we take Aristophanes in all his elements, we should have to look for parallels to Swift's pamphlets and *Travels of Gulliver*, the caricatures of H. B. and *Punch*, the lyrics of Shelley and Victor Hugo, the fairy world of *A Midsummer Night's Dream*

and the *Tempest*, the invective of Junius, the irony of Courier, the humour of Carlyle ; all represented with the musical accompaniment and the scenic resources of a modern theatre. Fortunately some conception of this amazing medley can be gathered from the excellent translations of Hookham Frere, T. Mitchell, and B. B. Rogers. The extinction of political activity and freedom in Athens was fatal to the direct satire of the *Old Comedy*. It passed by an easy transition into the *New Comedy of Manners*, of which Menander is the type, and which is the true parent of our modern comedy.

J. P. Mahaffy : *History of Greek Literature*. J. A. Symonds : *Greek Poets*. P. Laffitte : *Grands Types*, ii. 11. B. B. Rogers : *The Comedies of Aristophanes*, edited and translated into Eng. verse. J. H. Frere : *The Acharnians, Knights, Birds, and Frogs*, trans. into Eng. verse (Everyman's Library). T. Mitchell : *The Acharnians, Knights, Clouds and Wasps*, trans. into Eng. verse. G. Murray : *The Frogs*, trans. into Eng. verse. Eng. prose trans. in preparation for Loeb classics.

ENNIUS, b. 239 B.C., d. 169 B.C.

Roman poetry, an import from Greece, cultivated for two centuries by provincials and never acclimatised at Rome till the Empire, traced its origin back to Ennius, born at Rudiæ in Calabria. His Oscan blood, combined with a Greek education received at Tarentum, and cemented by Roman citizenship conferred in 184 B.C., rendered him a fit founder of so composite a thing as the poetry of Social Polytheism. By a strange freak of fate, he was brought to Rome in 204 B.C., by the elder Cato, who met him as a centurion in the Sardinian army—the "semi-Græcus" by the great type of aristocratic nationalism. He gained a plain livelihood on the Aventine by teaching Greek and writing poetry of various kinds. In his later years his friendship was sought by many of the leading men of the day, including Scipio Africanus, and M. Fulvius Nobilior, with whom he served on the Ætolian expedition. Six hundred dislocated lines survive of works which covered the whole field of poetry. Comedies from Menander, tragedies from Euripides, satires of native growth were crowned in his old age by the epic of his country's history from the earliest times to the end of the First Punic War, on which his contemporaries and posterity have agreed to rest his fame. By the desire of his patron Scipio Africanus, his remains were deposited in the sepulchre of the Scipios, and his bust was allowed a place in the effigies of the great house. The works of Ennius existed entire so late as the 13th century. He himself wrote his epitaph, foretelling his immortal fame, as one whose words would be repeated from mouth to mouth for ever.

Living in the second aristocratic stage of Roman history, Ennius embodied the full fruits of Rome's native development, with the germ of the new culture in its crudest form. Divining the right road for his country's poetry, he discarded the native metres of Nævius and Livius Andronicus, and presented with much spirit the Greek hexameter and iambic. It was for his successors to soften the harshness of his diction and polish the verse of Virgil.

In matter as in form, Ennius was the first to strike the keynote of Roman civilisation—progress by incorporation. The Roman People is the hero of his epic ; its scattered episodes of legend and history are welded by one destiny of universal rule and culture. Like Homer's greater and truer epic, it arose in the young manhood of its country ; unlike it, it looked on the future and not on the past.

Enthusiasm for this future enforced itself by order, perseverance, and deep antiquarian research. It extinguished in the poet's mind the dim fetiches of ancient Rome, and, in spite of Pythagorean transmigration, and a few other traces of old beliefs, became the moving religion of his life.

The later poets carried forward the work of Ennius on concentric, though more or less diverging lines. He may be regarded as a rudimentary Virgil. [F. S. M.]

W. Y. Sellar : *Roman Poets of the Republic*, ch. iv. p. 62. Mommsen : *History of Rome*, bk. iii. ch. xiv.

LUCRETIUS (*Titus Lucretius Carus*), b. 99 B.C., d. 55 B.C. (?)

The long silence from the death of Ennius to the birth of Lucretius was broken by no great poetic voice. Slowly and quietly the principles which took form in the *Annales* of Ennius permeated the leading classes at Rome till the genius of Lucretius awoke to a new intellectual world. Of his personal history the main facts are doubtful and the details quite unknown. From his name he is argued to have come of an old Roman family ; from his poem to have felt true friendship for the unworthy Memmius, and to have lived the life of a recluse.

Around him raged the revolution of the third aristocratic stage : Greek culture had done its work, and the world was ready for an emperor. By the best minds the old religious forms were cherished only for literary and artistic adornment ; the real political power was the price of arms ; the social bonds of class to class were loosed, and the spiritual government of the seething State was committed to a crude literature of which the chief virtue was its frank unoriginality.

The one work of Lucretius is a philosophical poem in hexameters, which, in development of form, lies half-way between Ennius and Virgil. His subject is an atomic theory of the universe, drawn from Democritus and Epicurus, and presented, like the philosophies of the older Greeks, in didactic verse, diversified by passages of extreme beauty and pervaded by a spirit of magnificent earnestness and prophetic zeal.

The atomic theory which he expounded was of course as precocious as it was brilliant. Physical science was not yet sufficiently advanced to furnish an adequate basis of accurate observation and mathematical form. In the hands of Lucretius it was primarily a weapon for attacking the old superstitions which in his view were

responsible for most of the misery and backwardness of the world. Religion, as he saw it, was the parent of evil. But he gives us, side by side with this, the first sketch in literature of the great stages in human progress, from the earliest animal men who helped themselves with tooth and nail, to the civilised beings who had tamed the lower beasts and founded cities and cultivated the arts. He has too a large measure of the civic spirit which spoke in Ennius, and he carried into his own realm of nature the orderliness and energy of Rome which had knit together the Western world.

But he loved Nature best, and more perhaps than any other poet before Wordsworth. "Earth," he says, "is rightly called Mother, seeing that she brought forth the race of men and every beast and bird in its due season. . . . In the beginning Earth hath in herself the elements whence watersprings pouring forth their coolness perpetually renew the boundless Sea, and whence fires arise, making the ground in many places hot, and belching forth the surpassing flames of Ætna. Then she bears shining corn and glad woodlands for the support of men, and rivers and leaves and shining pastures for the beasts that haunt the hills."

If his view of nature seems sometimes terrible in its mechanical emptiness, he adds to it a human sympathy which inspired him to search for truth and to help the poor sufferers from superstition, and a conception, dim indeed, but no less real when it appears, of a great power of Love by which all things are drawn together and by which mankind is led on from savage beginnings to a gentler and a nobler order. He is in this way not only one of the greatest iconoclasts of religion founded on fear, but a precursor of the religions of hope and love.

In the force and vividness of his language he is often Homeric. He profoundly influenced Virgil and has been frequently drawn on by later writers. But it has been left to our own days to appreciate him fully. [F. S. M.]

H. A. J. Munro: *Lucretius: Introduction, Notes, and Translation.* W. Y. Sellar: *Roman Poets of the Republic.* Mommsen: *History of Rome,* bk. v. ch. xii. C. H. Herford: *The Poetry of Lucretius,* a lecture. Eng. prose trans. in preparation for Loeb classics. Eng. verse trans. by Sir R. Allison.

HORACE (*Q. Horatius Flaccus*), b. 65 B.C., d. 8 B.C.

Sprung from a simple freedman of Venusia, and educated at Rome and Athens, Horace built on the piety and tastes of a peasant the culture of a man of the world. From 44 B.C. to 42 B.C., he served the dying Republic as a military tribune in the army of Brutus and Cassius; and, after Philippi, returned to Rome and took to writing lampoons. But gradually he succumbed to events, and accepted the Empire as expedient, which was, to our fuller knowledge, necessary. He bought a clerkship at the Quæstor's, and worked his way into friendship and reputation by the writing of his *Satires.* At

last he was put on the high road to wealth and honour by Virgil and Varius, who introduced him to the intimacy of Mæcenas. In the quiet comfort of his Sabine farm—the gift of Mæcenas—his genius ripened into the *Odes* and *Epistles*; he was, in his latter days, recognised and honoured by the friendship of Augustus himself.

His metrical form, like much of his substance, is borrowed from the Greeks, and though the charm and flexibility of the originals are reduced, a new Roman dignity and depth of sound appear which make him, especially in the *Odes*, a perfect blend of Greece and Rome. The hexameter, which he uses for the *Satires* and the more or less satiric *Epistles*, is an advance in ease on the hexameter of Lucretius, but does not attain, or even aim at, the perfect music of Virgil. In the lyrics, where form was more important, Horace brought it to such perfection that, as with the hexameter of Virgil, further development was decay.

In the matter, as in the form of his poetry, one is first and most struck by the perfect balance and union of the different strains which had gone to the making of his life and character. There is the man of simple country tastes, educated and transformed, but not spoilt, by the urbanity of Rome. There is the Roman ring of the earlier poets, softened, but not extinguished, by the glamour and triumphs of the Empire. Above all, the rival contemporary philosophies of Greece, the creed of the Stoics and of Epicurus, find in Horace an unexampled reconciliation. He had studied in Athens and served with Rome.

It is this quality which has made Horace the prophet of the even mind, of moderation, of kindly and humorous wisdom for all time. The follower of Brutus and Cassius who was able twenty years later to call down blessings on Augustus as the heaven-born restorer and guardian of the State, he has appealed ever since to the finer type of worldly mind which seeks to make the best of the passing hour, to remain contented and healthy, to keep faith with one's friends and be generous with one's dependents, to avoid excess, and of all activities to be most strenuous in those which most adorn the intellectual life.

He has none of the enthusiasm and the magic force which made Virgil the leading poet, even a superhuman figure, during the Middle Ages. Still less has he the depth or philosophic power of Lucretius which commend him to the modern world. But in the cultivated man who arose at the Renascence he found a congenial soul. No poet has been more popular, more universally quoted, more often reprinted since the Revival of Learning. Condorcet had a Horace with him when he died. De Witt, before the mob tore him to pieces, quoted the verses which describe the righteous man whom neither the clamour of a degraded crowd nor the scowl of a tyrant can bend from his purpose. This is his most famous passage on the Stoic side. And in the gentler key, what is more admirable

than the passage in the first *Satire* where, after denouncing, as he often does, the mad pursuit of money, he asks whether if, instead of this, you had taken the trouble to retain the love of friends and relatives which had been freely given you by nature, you would be as likely to lose that ?

No other author gives us so complete a picture of ancient civilization at its height, with all its weakness and all its strength, charmingly expressed, and with no other can one feel so completely at home.

[F. S. M.]

Theodore Martin : *Works of Horace ; Life and Translation*, 2 vols. G. Simcox : *History of Latin Literature*. J. W. Mackail : *Latin Literature*. W. Y. Sellar : *Roman Poetry of the Augustan Age*. *Odes and Epodes* in Loeb classics ; *Epistles and Satires* in preparation.

TIBULLUS (*Albius Tibullus*), b. 54 B.C., d. 18 B.C.

Born at Pedum in an equestrian family, TIBULLUS, unlike Horace, cherished through life his rural tastes and superstition. He found a Mæcenas in M. Valerius Messalla, whom he followed on some of his military expeditions. But most of his life was spent in cheerful but refined retirement. Four books of elegies, and one or two stray poems, remain with his name ; but only the first two books are authenticated.

His life, which falls within the life of Horace, was lived under the same social and political conditions, but his nobler birth, which deprived him of one of the strongest incentives to literary exertion, and his own character, combined to make his poetry very different.

In form, Tibullus is the most original of Latin elegiac poets. Propertius, Catullus, and the rest of his brother poets, imitated or translated Callimachus, Philetas, and other Alexandrians. Tibullus took his metre from the older Greek sources, and Romanised it. His verses, without the nervous strength of more developed elegies, have an unfinished sweetness of their own. The elegies of Ovid—the zenith of the form—was reached by progression on the lines Tibullus had laid down. It is a form apt to express with grace, in a language like Latin, of neat turn and careful balance, thoughts of pithy and disjointed shape.

Tibullus, alone in his day, stood aloof from the Empire ; but it was from carelessness rather than conviction. His position, united to his talent, gave him independence enough to survey with calm melancholy the change of freedom to unity. His song was not of empire, but of love, his household gods, and his patron, Messalla. Unlike Horace, Tibullus sang a living Delia, but, unlike his elegiac brothers, he served her with a fidgety pride, and not a passionate though short-lived devotion. His rustic piety was interwoven with his love of Nature. He did not live by faith, nor did he, like the Alexandrians and their followers, explore the details of mythology to darken his meaning with erudition. But his superstitions were a part of Nature itself, and he clung to them with the same loving

association and artistic sense. He thus enforced by a new attitude of mind the lesson of the literature of the day, and "admitted the decay of religion by subjecting it to poetic treatment." He honoured Messalla with more real esteem than Mæcenas and later patrons of literature have ever received ; but he was an amateur. He despised fame. Like Landor, he may be summed up as the poet of culture and leisure.

Besides his great position in the history of Latin elegiac poetry, he was specially endeared to later literature by the untimely end of his gentle talents. He is addressed in one of the Epistles of Horace and celebrated in one of the sweetest elegies of Ovid.

[F. S. M.]

G. Simcox : *History of Latin Literature.* W. Y. Sellar : *Roman Poets of the Augustan Age.* Eng. trans. in Loeb classics.

OVID (*P. Ovidius Naso*), b. 42 B.C., d. 17 A.D.

OVID was born at Sulmo in Central Italy, a centre of disaffection in the Social War. He lived a loose literary life at Rome till his 52nd year, when a rescript from Augustus banished him to Tomi on the Euxine, where he died after eight years of lonely wretchedness. The immorality of much of his writing, and the suspicion of an intrigue with Julia, probably pointed him out to Augustus as a fit instance of his censorship of morals. The most prolific of Latin poets, he has left us three long series of amatory poems, a poem on the "Reasons and Seasons" of Roman ceremonial, two series of lamentations from Pontus—all in elegiacs—and one poetical romance in hexameters, longer than any of the other poems.

The few years which separate Ovid from Tibullus mark a clear advance in the social and political conditions. The Empire and its surroundings were firmly established and no one "moved a wing or opened a mouth." The poetry of Ovid reflects this social rest.

Its form contains the germ of post-Augustan decay. The pride of perfect diction began to chafe at the trammels of meaning. This is more obvious in the hexameters, for we are bound to read them side by side with Virgil, where diction and meaning are perfectly adjusted. But an elegiac couplet demands a certain sacrifice of matter to form, and in bringing it to the highest perfection known, Ovid undoubtedly proved himself one of the subtlest masters of language the world has ever seen.

He carried the same ingenuity into the development of his ideas. His poetry, except when he is in trouble, never springs from the heart ; it is a clever, pointed, unexpected contrivance of the head. No great public or private devotion had ever seized on his affections and powers, and restrained their selfish but not ungenerous bent. Some of his love-writing is true, and what is immoral we must forgive, partly for its satiric turn, partly because it is nearly forgotten. The

peculiar force of his mind, which found a partial outlet in the reconstruction of antiquarian details in the *Fasti*, was most fully and worthily employed in the *Metamorphoses*. This book, with the exception, perhaps, of Lucian, is the only forecast in classic times of the modern novel, a growing force of which we can probably only underrate the value.

Ovid was the beginning of the end of Roman poetry. His manner supplied the scanty graces and initiated the pervading weakness of later writers. His presence in the works of all poets of the decline, united to his own attractive grace, ensured him a wider circle of readers and admirers in the Middle Ages than any other ancient poet enjoyed. [F. S. M.]

G. Simcox: *History of Latin Literature*. C. Merivale: *Romans under the Empire*, v. ch. xli. *Heroides*, *Amores* and *Metamorphoses* in Loeb classics.

LUCAN (M. *Annæus Lucanus*), b. 39 A.D., d. 65 A.D.

Grandson of the elder Seneca, LUCAN was born at Corduba in Spain. He gained an introduction to Nero from his uncle by his youthful fame as a declaimer. His life at Rome was moulded by two forces—the complacent luxury of the court, and the Stoic truthfulness of Cornutus, the tutor of Persius. His trial came when Nero cast him out of his friendship through jealousy, it is said, of his greater name as an orator. He wrote the *Pharsalia*, in which violent attacks on Nero and the Empire are interspersed amid the cant of compliment universal at the time. Then he joined Piso's conspiracy, and, on discovery, opened his veins. His poem is a historical epic in hexameters, describing the closing scene of the Republic.

In Lucan, external conditions seem lost in personal circumstances. Yet the reaction of his soul could not efface the deep effects of imperial union, and a court steeped in luxury and pride.

Virgil was his model of form: but his verses are weighted with the studied point and much of the prose of oratory. The epic of a vanquished hero and a lost cause is a wholesome corrective to the pride and ingratitude of an age of absolute temporal power. But when Lucan recalls the glory of Pompey and the aristocratic Republic, the value of his estimate is marred by the lack of a sense of social growth. To him the imperial present was a malformation of history; and the future, with its promise of a new life, dimly foreseen by Virgil a hundred years before, a deepening, hopeless darkness. His social pessimism was buttressed by a strong intellectual grasp of the logic of the current scepticism which he preached with a vehemence unknown to Lucretius or any other ancient doubter. Yet his imagination was so vivid and minute that it led him into sensational realism. While his life was oozing from the opened veins, he recited dramatically passages from his poem to friends around. And in the same spirit he wrote. Working on a great

character or a striking event, he elaborated an effect by bold drawing and heightened tints.

The influence of Lucan on later writing lay mainly in phrase and style. His spirit was abortive, because it was out of joint with the times. The epic poet needs an age of undeveloped vigour to fulfil his powers, and most men of epic power who have had the ill lot of being born to a world satisfied with its own completeness, have turned their mind to other work or died inglorious. But Lucan strove by strong imagination and deep passion to force the growth of epic poetry in an age which had saturated even his own mind with its pride of luxury. [F. S. M.]

G. Simcox : *History of Latin Literature*, ii. 34. E. Ridley : *Pharsalia*, Eng. trans.

VIRGIL (*P. Vergilius Maro*), b. 70 B.C., d. 19 B.C.

The greatest of the Roman poets was born at Andes, a village near Mantua, in the first consulate of Pompeius and Crassus, 70 B.C. He was about thirty years younger than Julius Cæsar and Lucretius ; a little older than Augustus, Mæcenas, and Horace. It is thought that his name was written VERGILIUS, the first syllable suggesting a Gallic descent, and that he was not by birth a Roman citizen. His father, a well-to-do farmer of the Cisalpine province, gave his son the best education, at Cremona, Milan, and then at Rome. With delicate health and of nervous temperament, the young student shrank from arms and from oratory ; and, almost from boyhood, devoted himself to a life of meditative retirement ; haunted with dreams of a great poem on the early history of Rome, and meanwhile occupied with minor poems on rural subjects. After the battle of Philippi, the poet, then aged 29, was dispossessed of his paternal farm and nearly killed by a soldier of the victorious party. Augustus, his patron and friend, compensated him ; and gave him estates and gifts which ultimately amounted to a large fortune. For a short time he lived at Rome, but soon withdrew to Naples ; where, and at a villa in the Campanian country, he passed the rest of his life. During a tour in Greece with Augustus, he took a fever and died at sea off Brundisium, having not quite completed his 51st year. He was buried at Posilipo, near Naples, where a monument traditionally said to be his, is still shown ; and from his own time it has been a place of religious pilgrimage and superstitious reverence.

No life recorded offers a more complete dedication to one great purpose, or a more serene and unbroken concentration of powers on the poetic office. The poet was tall, dark, and somewhat rustic in air ; modest, shy, retiring in disposition, and somewhat proud ; a confirmed invalid, and never married. His life and his verse were pure and refined, full of a deep religious melancholy ; he lived apart from all the storms and distractions around him.

both public and private. *Candor, fides, pietas—i.e.* simplicity, honour, conscientiousness—are the phrases by which his warm friend describes the poet.

He was one of the most learned and most serious of all poets; like Dante, Milton, and Racine, profoundly saturated with the best culture of his age; living in personal relations with the great statesmen of his epoch, but meditating on the world of action from a distant and poetical retirement. Happily, his life was free from the cares and disappointments which weighed on the three poets whom he most resembles. Of all poets, Virgil was perhaps the most intensely conscientious and laborious. He said "that he produced verses as a bear does her cubs," by licking them into shape. In 24 years of incessant labour, he wrote less than 13,000 verses. He spent 7 years on the 2288 lines of the *Georgics*, and 11 years on the *Æneid*, which consists of only 9892 lines, and which was unfinished at his death. He gave a characteristic proof of his passion for perfection, when he directed his friends to destroy the manuscript to which his final touches were still wanting. Fortunately, at the order of Augustus, they disobeyed the poet, and saved to the world the great Roman masterpiece.

Roman poetry is less spontaneous, less imaginative, and more artificial than that of Greece; but, from the social point of view, its higher level has a finer moral power; it has a nobler personality beneath its voices, and is more fully inspired with a national mission. In all this, Virgil stands pre-eminent, as the great national poet who idealised his country in a critical moment of its development. Hence, even in his own lifetime, he was at once recognised as the national poet of Rome; and since then he has always remained the supreme poet of the Latin race. In the Middle Ages Virgil exerted the same spell, and even in church hymns was addressed as *poetarum maxime*. The reverential devotion of Dante to Virgil led him to personify the poet of Italy as earthly wisdom: "my master and my author," as he is invoked in the *Divine Comedy*. And all through the Mediæval and Renaissance epochs, and down to the rise of the revolutionary and romantic outburst of the last century, Virgil reigned supreme. We can now see how vastly inferior he is, in native purity and in sublime imagination, to Homer and Æschylus; but we can also see better than ever how completely he embodied the dignity and social greatness of Rome, as it passed from a turbulent republic into a world-wide dictatorship.

Virgil was born under the Republic, before the Italians across the Po had received the Roman citizenship. He was 22 when the battle of Pharsalia made Julius dictator of the civilised world; and he was 39 when the battle of Actium made his friend Augustus supreme ruler. The poet, deeply sympathising with the new hopes for an era of peace and order, saw in the imperial dictatorship an epoch of prosperity and stability; and in the unification of the Roman provinces the prospect of a greater Rome to be. His whole

career was inspired by a mission to idealise this future of peaceful development, with Rome as the protector and leader of the world. His *Pastorals* and his *Georgics* are the poems of peace and rural industry. But the *Æneid* is the central work of his life. In youth he had meditated on a poem in the Homeric manner, such as Alexandrine versifiers had so often produced, which was to celebrate the early history of Italy and Rome. A larger experience taught him to lay aside the *literary* idea of an epic, confined to heroic adventures in mythical times. On the other hand, his poetic imagination recoiled from the attempt to idealise actual history and recent times, as Ennius had done.

The *Æneid* is the combination of both conceptions. The form of his epic is found in the Homeric world of the ideal heroes: but its inner spirit is a continuous appeal to the sense of national dignity and to the patriotic hopes of his countrymen. Thus the poem is surrounded with all the halo of the Homeric legend; and, though being in form a continuation of the *Iliad* and the *Odyssey*, in substance it is "the epic of the national fortunes"; alive with patriotic memories and hopes in every part; rousing the Roman race to a sense of greater glories to come and a new mission to fulfil. The centre of this new epoch was the dictatorship vested in the house of Julius, which the poem is designed to glorify, and almost to deify.

But Virgil was no court flatterer. He was a patriot, and an enthusiast, who profoundly believed in a social and political revolution, under which the transition from the ancient world to the modern was ultimately effected. Not in the ways anticipated by the poet; who, like most of the greater Romans of the early Empire, from Julius to Marcus Aurelius, believed in a moral, social, and religious regeneration of the world without the revolution embodied in Christianity and Mosaism. It was an error; but it was a noble mistake. And the idea of this moral, material, social, and religious revivification of the ancient society under a beneficent emperor, was never put in a finer and more religious spirit than it was in the *Æneid*, under its peaceful, beneficent, pious hero, Æneas. Indeed, the whole epic is a poetic analogue of Augustine's *City of God*, a pagan idealism of the city of the deified emperor. And it is this idea of a religious regeneration of mankind to be worked out under the leadership of Rome, as prefigured in his early poem, the *Pollio*, or 4th Eclogue, which gave Virgil his vast influence all through the Catholic period.

This vision of a peaceful reorganisation of the world, and the intense social and religious earnestness of Virgil, separate the *Æneid* from all the literary epics, ancient or modern, and place it alongside of the *Divine Comedy* and the *Paradise Lost*. His ideal of the destiny and mission of Rome is inferior to the ideal of Dante and Milton, — the destiny and mission of Humanity. But it is less vague and less superhuman: more real, more definite, and more true to fact. The Augustan age is often compared to that of Louis XIV.: but

it was far larger and with a grander future before it. Virgil combines Corneille and Racine, and surpasses both. He displays the heroic types, the moral elevation, the massive dignity of Corneille, together with the religious spirit, the learning, the pathos, the consummate mastery over language of Racine. But his theme is far less artificial, remote, and literary than that of any of the French or the Italian tragic and epic poets, save Dante alone. He was not presenting a historical picture, or dealing with an imaginary world: he believed in the reality of the mythology which he used as his machinery; and his main object was to present to his own countrymen the past, the future, and the dignity of their common country. In this conception of human progress, unity, and life, he makes a step towards the ideal poet of Humanity.

It is not necessary here to enlarge on the consummate mastery over language possessed by Virgil, the majestic roll of his matchless hexameter, the symmetry and perfection of his poetic form, on his immense learning and philosophic spirit, on the deeply practical and moral force of his appeals to duty and heroism, on his spiritual presentment of human life and death, on his refined picture of the great and just ruler of men, on his consummate gift of tenderness, and the intense pathos with which he has painted heroic women, or on the style which makes him the best known of the ancients by virtue of his massive and monumental embodiment of noble thought. Inferior as he is in spontaneous imagination to the greatest poets of Greece—to Dante and Ariosto, to Shakespeare and Milton—he will always remain, by virtue of his unique historical position, one of the greatest poets of the world. [F. H.]

W. Y. Sellar: *Roman Poets of the Augustan Age.* F. W. H. Myers: *Essays, Ancient and Modern, Virgil.* Conington: *Translations of Virgil in Verse and Prose, Introduction and Notes.* C. J. Billson: *The Æneid,* trans. into English verse, line for line, with text (2 vols.). Eng. prose trans. in Loeb Classics (2 vols.).

For all the names in the week, see J. W. Mackail: *Latin Literature.*

The Loeb Classics, to which reference is frequently made, consist of the Greek or Latin text with interleaved English prose translation.

The following authors named in the month of Homer, or their works, are represented in the Positivist Library (all without notes):—

The *Iliad* and the *Odyssey*;
Æschylus, the *King Œdipus* of Sophocles, Aristophanes;
Pindar, Theocritus, Longus (*Daphnis and Chloe*);
Virgil, Horace (Selections), Lucan, Plautus and Terence;
Ovid, Tibullus, Juvenal.

ANCIENT PHILOSOPHY.

ART, Philosophy, Science: these are the gifts of Greece to the world. In the long passage upward, from the despotic rule of Theocracy to the free service of Humanity, she taught the lessons of joy in the beauty of life, and of search for truth apart from gain or profit.

From the first of these lessons we pass now to the second. It was a new thing in the world that, here and there in the Greek cities of the Levant, or the South Italian coast, men should arise who spent their lives in trying to explain man and the world; to find, that is to say, some general facts or principles on which all that we see in the world around us could be shown to depend, without reference to the arbitrary will of an unseen Deity. The motions of the sun, moon, and planets, the internal structure of animals, the flight of birds, the fact of storms and earthquakes had been examined and recorded for thousands of years. But the object of noting these things had been to gain insight into the will of the gods, which they were supposed to indicate. Other facts of nature were studied just so far as they threw light on the practical arts of life: agriculture, weaving, dyeing, metal-working.

But now, from the seventh to the fifth century before the Christian era, arose men like Thales, Anaximander, Heraclitus, Democritus, who devoted their lives to the task of making the universe intelligible to man. Apart from all thoughts of religious belief on the one hand, or on the other of practical utility, they sought to arrive at some underlying principles to which the infinite variety of sights, sounds, and feelings that surround and make up man's life could be reduced. The result of the work of these men, and of their colleagues and disciples, was the introduction of two new forces into the life and development of Humanity — Science and Philosophy.

By Science is meant the discovery of a general fact common to a great number of special facts: such as to enable us to foresee and measure things which we cannot directly handle. For instance, the number of triangles of different shapes that can be formed is infinite. Amidst these differences, Thales found one fact common to all; namely, that the three angles were in every case equal to two right angles. We are thus enabled to measure the sum of the angles of any triangle, or, if we know the sum of two of them, to

predict the precise magnitude of the third, without direct measurement of the special case. Similarly, the biologist, examining the teeth and limbs of a new quadruped, is able to predict many facts as to its digestive organs and its moral nature; because he is in possession of a scientific law, that is, of a fixed general relation, connecting these facts together.

Philosophy, on the other hand, implies the attempt to find a principle, or series of principles, which may make man's place in the world intelligible to him. In accordance with Comte's law of the three stages through which our conceptions pass, these general principles will be first theological, secondly metaphysical, and finally positive. That is to say, they will first explain the universe by the Will of a Being, or Beings, with passions and faculties akin to those of man, but transcending them in power; secondly, by the artifice of some abstract entity, like Nature; and, lastly, the attempt to reach any absolute explanation of the universe will be abandoned, and Philosophy will consist in the orderly arrangement of scientific laws, in accordance with their closer or more distant bearing on the life of Humanity.

Comte's second law of evolution explains that our speculations pass through the first and second of these stages into the third, with varying rapidities, according as they relate to simpler and more general facts, or to those that are more special and complex. The branches of inquiry in which the thinkers of Greece reached the positive stage, related, with one important exception, to the simplest and most universal of all phenomena, those of number and space. In dealing with facts of a slightly higher degree of complication, those of motion, for instance, they were dominated by such metaphysical conceptions as that circular motion was perfect and eternal. With the facts relating to the composition of matter, to life, and to human conduct, the influence of similar metaphysical beliefs was even greater. The one remarkable exception is Aristotle, whose precocious genius introduced positive methods of research into these higher studies. Consequently his philosophy, though in the main still metaphysical, made advances in the direction of Positivism unapproached by any thinker of antiquity, and by few of modern times.

The history of Greek thought falls broadly into two periods. In the first, from Thales to Aristotle, positive science and metaphysical philosophy were, in the main, prosecuted by the same inquirers. In the second period, lasting till the suppression of the Hellenic movement by the Christian Church, Philosophy and Science parted company. Positive thinkers, from Archimedes to Hipparchus, devoted themselves to the special subjects of Geometry and Astronomy, in which alone the discovery of precise scientific laws was at that time possible. Philosophy, meanwhile, deprived of the bracing influence which positive thought exercised, even on subjects which it could not master, became intellectually more

feeble and verbose ; and the later stages of it would have deserved no record but that they served the social purpose of undermining polytheistic belief, and of preparing the doctrine on which the Catholic Church was ultimately to be founded.

The one really new thing given by Greece to the world is abstract science ; that is to say, the isolation of a special class of phenomena as seen in various objects, and the discovery in these of fixed relations. Concrete science, founded on observations of objects, without any attempt to consider the distinct classes of facts, or phenomena, that each object presents, had of course existed from the earliest days of human society. Much positive knowledge of winds, tides, plants, and animals is possessed by savages. The philosophers and priests of China and Egypt had observed the apparent motions of the sun and planets, and the regular recurrence of eclipses. Geometry, Herodotus tells us, is of Egyptian origin ; it was the art, as the name indicates, of remeasuring fields after the annual inundation of the Nile. But, between practical mensuration and what we understand by Geometry, there is an all-important difference. To measure a given surface with accuracy sufficient for practical purposes is one thing ; to abstract the line from the surface, and find out the fixed relations between lines bounding every kind of surface, is quite another. And it is this that was done by the long line of Greek scientific thinkers from Thales to Hipparchus. It was the first approach to the scientific conception of the universal order, which is, at the present time, working so fundamental a change in human society.

Some glimpse of its social import was visible at the outset. In the best period of Greek thought, lofty views as to the conduct of life were combined with scientific speculation. "Study Geometry before you enter here," was the inscription over the school of Plato. Still more fully was the bearing of science upon human conduct recognised by Pythagoras, whose noble, but premature, attempt to organise life on the basis of scientific law failed only because the range of science was limited as yet to the facts of space and number. It was left for Aristotle to introduce the conception of scientific order into the more complicated facts of life and society.

The names given in each week of the month of Aristotle are arranged on the following plan :—

The first week represents the dawn of Greek thought, in which attempts were made to explain the universe by some one physical principle ; the positive science of geometry meanwhile slowly disengaging itself. Of this stage, Thales is the principal representative.

The second week illustrates the premature, but momentous, effort to use science as the basis for the organisation of human life, instituted by Pythagoras.

The third week presents the ethical side of Greek thought. This was the side most attractive to Roman thinkers, three of whom are here included. The principal type is Socrates.

The final week is devoted to the school which, under the teaching of Plato, prepared the way, consciously or unconsciously, for the Christian Church. [J. H. B.]

ARISTOTLE, b. 384 B.C., d. 322 B.C.

ARISTOTELES, son of Nicomachus, physician at the court of Macedon, was born 384 B.C., in Stageira, on the coast of Thrace. At the age of eighteen, or, by another account, at the age of thirty, and after much experience of practical life, he came to Athens, and entered the school of Plato. After Plato's death, in 347, he lived at Atarneus, then ruled by Hermeias, whose niece, Pythias, he married. After the death of Hermeias, he lived for some years at the court of Philip of Macedon, where he was charged with the education of Alexander till the death of Philip, in 336. He was much occupied during this period with civic duties of great importance in his native city of Stageira. When the Persian war began, Aristotle went again to Athens, this time not as a pupil but as a master, and established his school in the gymnasium attached to the temple of Lycean Apollo. At the death of Alexander, twelve years afterwards, a charge of impiety was brought against him by the chief-priest of Demeter. He retired from Athens, and died the next year at Chalcis, at the probable age of sixty-two years. His will is preserved to us in the biographies of Diogenes Laertius; it shows affectionate thought for each member of his family, and grateful remembrance of those who had died before him. His household servants are not forgotten; they are to be set free from bondage.

It has been often said that Aristotle's greatness was not recognised till the Middle Ages. And this is true; but it does not go far enough. The Greek world, now politically degenerated, looked on Plato, and men far weaker than Plato, as his superiors. By a strange accident, his principal works, intrusted to his disciple Theophrastus, disappeared from view for two centuries, till brought to Rome by Sylla, and edited by Andronicus. In the turmoil of barbarian invasion, and during the building up of the Catholic Church, his name was forgotten, except by a few obscure writers in Constantinople, till the great Mohammedan schools arose in Bagdad and Cordova. Averrhoes, mentioned by Dante (*Inferno*, iv.) as the great Aristotelian commentator, and the Jew, Maimonides, were his principal introducers to the Western world. From the twelfth

to the fourteenth century his metaphysical system became, in the hands of the Schoolmen, the basis of Catholic theology: so that his fame, thus bound up with beliefs and institutions doomed to decay, became at last an obstacle to intellectual progress.

The growth of positive science during the last three centuries has brought new insight into his power. But not even yet, except by the school of Auguste Comte, has this been fully recognised. Two words suffice to define it: Reality and Comprehensiveness. More truly than any thinker before him, or for twenty centuries to follow, did he measure the sphere within which thought is possible; more fully than any other did he embrace the content of that sphere. Comprehensive thinkers there have been in abundance, from Aquinas to Kant, but they have been deficient in reality; scientific thinkers have abounded, from Archimedes to Faraday, but absorbed in one or more special subjects. Between Aristotle and the author of the *Philosophie Positive*, no one in the same degree has combined both attributes. That he had quitted the metaphysical stage of thought for the positive stage would be too much to say. We find in his writings the most striking illustrations of Entities taking the place as yet unoccupied by Laws. Wholly to dispense with metaphysical and even with theological conceptions, at that period of human evolution, would have involved the absence of any principle of cohesion by which his studies of man and the universe could be knit together. It would have been like building the arch without scaffolding. But the metaphysical system of Aristotle was of such a kind as to prepare the way for the positive spirit in every department. And in many fields of thought he was not merely the first to introduce positive method, but attained results by it to which thinkers of our own time have recurred, and will yet recur, with profit.

Let us now attempt to justify this high praise, so far as limited space will allow. Of Aristotle's treatises many have been lost; and those which remain are not arranged in definite sequence. The simplest course, therefore, is to follow the order practised by Auguste Comte; beginning with First Philosophy, and taking special subjects in the order of diminishing generality, from Cosmology to Ethic.

The First Philosophy of Comte is an attempt to group together those positive laws which hold good of every branch of thought. With Aristotle it was the attempt to reach a principle of absolute certainty, by discussing the problem of Being, which had already dissipated, and was yet to dissipate, the energies of so many thinkers. But the metaphysical and logical constructions of Aristotle, of very great temporary interest, but of small permanent value, cannot be described here. The conception of language and human reason as products of sociological growth was reserved for our own century. Aristotle was as far from it as any of his successors.

Theology, with Aristotle, was reduced to its barest elements.

He appears to have believed in a Divine Being or principle, of a nature akin to what he looked on as the highest faculty, that of abstract speculation, and to have regarded this Being as the prime source of motion, itself being unmoved. Such theology offered no hindrance to intellectual progress, yet was compatible with the superstructure which Aquinas and Dante built upon it in after times. The active powers which, under the supreme mind, animated the world as minsters of this passive Deity, were Nature and Fortune ; the first, as Comte remarked, corresponding to known laws, the second to unknown. Nature, the metaphysical abstraction which has played so potent a part in modern thought, means, like the Greek equivalent, *Physis*, the tendency to grow or unfold in this or that way. The newer word, *Evolution*, is not seldom used in a sense equally vague.

We come now to Aristotle's scientific achievements ; which, however, were less striking in the inorganic than in the organic world. In Mathematics, he makes it clear that he had grasped the discoveries of his time, and had apprehended, with greater clearness than Plato, the fundamental distinction between Greek geometry and the empirical mensuration that had gone before it ; namely, the abstraction of point, line, and surface, and the detection, in those abstracted phenomena, of equation or law. Thales's equation of the angles of a triangle with two right angles is frequently referred to as a type of scientific certainty.

The Physics of Aristotle, destined to serve as the framework of men's thoughts on the material universe for eighteen centuries, was little more than a presentation in a systematic form of previous views, rendered coherent by conceptions of his own ; partly positive, partly metaphysical. His astronomy is made familiar to us in the Paradise of Dante. The spherical earth was the centre of things ; round it were a series of concentric transparent spheres, each holding its proper planet, and revolving with its own motion ; outside these was the sphere of the fixed stars, revolving, and causing all within them to revolve, in twenty-four hours ; beyond this, the motionless region whence motive force issued.

In Physics it may be said that Aristotle saw the importance of discovering the laws of motion. His own crude attempts to solve the problem rested either on such purely metaphysical conceptions as that of the inherent perfection of circular motion, or on the definite but untrue hypothesis that the velocities of falling bodies varied as the distance traversed. The last was at least a useful starting-point for the more fruitful efforts of Kepler and Galileo.

In Chemistry, Aristotle let fall some germs of valuable truth. For him, Earth, Air, Fire, Water, were compounds of yet more elementary substances with Heat and Cold. From these compounds of the first degree were formed others of a higher degree of complexity, of which the tissues of organic life consisted.

Not till we reach the science of Biology do we find his full powers

of generalising and co-ordinating, based on minute and accurate observation of fact. A fourth part of his writings is occupied with the study of living bodies. Many of his conclusions have required the knowledge of the present century for their just appreciation.

He grasped and applied the comparative method with extreme breadth and vigour. He anticipated Lamarck's division of the animal kingdom into Vertebrate and Invertebrate. In each sub-kingdom he defined the principal groups not less clearly. In Vertebrates he distinguished Mammals, Birds, Reptiles, Fishes. Of Mammals he defined most of the leading groups, arranging them by the character of their locomotive organs and of their dentition; the connection of dentition with the digestive apparatus being clearly apprehended. The mammalian characters of the Whale tribe were perfectly well known to him. Among Invertebrates, his minute study of Cephalopods is specially noteworthy. Seven at least of the species described by him are recognised by modern naturalists.

In Embryology, Aristotle had observed the first appearance of the heart in the development of the chick. Of Histology he may be regarded as the founder. His history of animals begins with the explicit distinction between the tissues of which animal structure is built up, and the organs compounded from those tissues: a distinction unappreciated till Bichat made it the foundation of his *Anatomie Générale*.

Generally, Aristotle saw clearly that, as we pass upward through the scale of life, completer unity went side by side with fuller complexity, in contrast with the vegetative repetition of parts seen in the lower Invertebrates (Cf. *de Juventute*, 2; *de Respir.* 17. 4; *de Part.* iv. 5, 6; *de Generatione*, iii. 2, and ii. 4 and 5). Finally, in the Abstract theory of life, his superiority to later biologists is no less conspicuous. His distinction (*de Anima*, ii. 2, 3), between the two kinds of life—the vegetal life common to the whole organic world, and the sensi-motor life distinctive of the animal kingdom—is another of Aristotle's conceptions which Bichat was the first to appreciate and develop. The bilateral symmetry of the organs of animal life had not escaped him (*de Partibus*, iii. 2). He saw, too, with extreme clearness that the higher and more special life had no existence apart from the lower and more general, from which it was differentiated. "Without the process of nutrition," he says, "there can be no sensation."

This great serial principle, afterwards so fully expanded by Comte, was applied by Aristotle to those higher vital functions, the study of which is commonly called Psychology; and is fully illustrated in his marvellous analysis of the process of Recollection, resting on the laws of association, which has left little for subsequent thinkers to supplement (*de Memoria*, ii. 451-2). Only in the highest intellectual function, that of Reason or *Nous*, does he take refuge in metaphysical abstractions. And this was inevitable; since Reason,

as exhibited in man, is the product of the collective human race in successive generations ; and the conception of Humanity was not yet attainable.

We come then to the Sociology of Aristotle ; contained partly, though not exclusively, in his treatise on Politics. He had made a careful study of all the constitutions, Greek or barbarian, known in his time. Fragments only of this work survive, to which his description of the Athenian State has recently been added. Guided by this inductive procedure, Aristotle was led to a sound general conception of the social organism, as the form of life towards which human beings naturally tended. He saw with clearness, unapproached by any thinker intermediate between himself and Comte, the two characters of such an organism : (1) division of functions ; (2) their convergence, carried to the limits consistent with the due measure of independence. To unify too much, he said, was fatal to the conception of a community.

He worked in Social Static, of which he is the true founder, not in Social Dynamic. Of the laws of social progress by which Industry would one day be substituted for war, and free labour for slavery, he had no knowledge. His horizon was almost entirely limited to the Hellenic world.

In Social Static, dealing with the permanent conditions of Social Order, Aristotle was confronted by the Utopia of Plato, in which those conditions had been subverted. Aristotle's defence of private property, and of the family, is a masterpiece of good sense guided by scientific method. His leading principle, that the State was built up, not of identical, but of unlike elements with different functions, and that the suppression of individuality was incompatible with social life, led him to see that Plato's Utopia was a mischievous aberration. That he should have classed slaves amongst private property was unavoidable, unless he could have risen to the conception of social evolution, for which the experience available in his time was inadequate. Centuries were to pass before the transition from slavery to serfage could begin.

On Language, another department of Social Static, Aristotle had much to say, guided always by the method of Filiation ; that is, by study of the work of previous inquirers. Language, like Capital, is a social product. But in Aristotle's time it was, as for many it still remains, a chosen haunt of the metaphysical spirit. Here, again, Aristotle was at issue with Plato, who contended that universal or general terms, as man, dog, horse, corresponded to unseen entities, called by him Ideas, of which any one man, dog, or horse was but a poor and transitory copy. To this delusion, destined to long survival in Christian controversy, Aristotle gave no countenance. Real existence, he maintained, could be asserted only of this or that particular object ; abstract terms were simply human artifices (*Metaphysica*, i. 9, xi. 4, 5).

From the Sociology of Aristotle we pass to his Ethic. The subject-

matter of this final science was rightly conceived by him as the conduct of the individual moulded by the Social State. Apart from a social environment there could be, he clearly saw, no moral life. His scheme of Politic is thus an appendage to his Ethic, intended to examine and describe such an environment. For moral exhortation or discussion would be, he says, thrown away on men unprepared by the discipline of life to give reason precedence over passion (*Ethic*, x. 9. 7).

The end of ethical inquiry, he points out, is practical rather than speculative. Our object here is not to acquire knowledge, but to become better men. Whatever general principles we may reach, we come at last, like physicians or navigators, to cases that have to be judged individually.

He begins by explaining that all men, consciously or otherwise, have an aim in each action; the special aim being subordinate to one still larger, and so on. The ultimate aim, consciously or unconsciously pursued, is happiness. Wherein consists true happiness? It consists in a life of noble activity. For perfect happiness the outward conditions must be favourable. Still, whatever misery may come, "the blest one (*makarios*) can never become wretched, for he can never do hateful or worthless things."

What is to be our canon of right action? Aristotle wisely declines to lay down such a canon. We become just and righteous, he says, not by listening to ethical discourses, but by doing just and righteous things. And these things are those that just and righteous men do. Subject to this warning against over-trust in theory, he defines Virtue as the state in which we use our free choice to avoid excess on the one hand, or defect on the other; as defined by right reason and the practice of wise men. A large part of his Ethical treatise is occupied with illustrations of this in detail. Courage, temperance, liberality, magnanimity, mildness of temper, geniality, truthfulness, graciousness, are analysed and contrasted with the vicious states of exaggeration or defect between which they stand. The discussion of justice, temperance, and friendship is carried out with special care. His manner of contrasting the false friendships of pleasure and interest with the perfect friendship following from intercourse of noble natures, wishing good for one another in that they are themselves good and pure, is but one of many signs that the heart of this great thinker was worthy of his intellect. Not less striking are his remarks on self-love; which, in its highest form, meant love for what was best in self; readiness to throw life away, if need were, at the call of duty; to do one great and noble deed rather than many small ones; to choose noble life for a year above many years of mediocrity.

He ends, as he began, with renewed insistence on the need of moral discipline begun in early life. The whole environment must be such as to predispose to the love of good and hatred of evil (*Ethics*, x. 9).

Summing up the result of Aristotle's life, we may say that his teaching prepared the way for the Mediæval Church by strong enforcement of the need for such moral discipline as that Church established ; and also by a coherent scheme of Nature more compatible with a single ruler of the Universe than with a multitude of discordant divinities. But its effects reached further into the future. The founder of Biology and of Social Statics prepared the way for the co-ordination of Science round the central conception of Humanity.

Phil. Pos. v. 53. *Pos. Pol.* ii. 234 ; iii. 255-262, and 361-363. See also Grote's *Aristotle* ; P. Laffitte's *Grands Types*, ii. 145-255 ; W. Ogle's carefully annotated translation of the *Parts of Animals* ; D. W. Thompson's *Aristotle as Biologist* ; and the Essays appended to R. Congreve's and W. Newman's editions of the *Politics*. *Aristotle and the Earlier Peripatetics*, trans. from E. Zeller's *Philosophy of the Greeks*. *Ethics*, trans. by Williams, 1869. *Politics*, trans. by B. Jowett. *The Works of Aristotle*, published by the Clarendon Press, under Jowett's bequest (proceeding). The *Ethics* and *Politics* of Aristotle are in the Positivist Library.

ANAXIMANDER, 6th Century B.C.

The name of Thales marks the period when the Greek mind, breaking away from theology, laid the foundations of science by seeking a natural explanation for the world and its phenomena. The work which he began was continued by a succession of thinkers, of whom ANAXIMANDER, also a native of Miletus, stands next in time. In the old age of Thales, Anaximander may have come under his personal influence ; he must certainly have been filled by his example with the new spirit of inquiry. But Thales's solution of the problem of the universe could not satisfy him. Recognising that the world is the scene of change—on the one hand of growth, and on the other of dissolution—he was impelled to believe that matter exists in some simple state whence all things proceed, to which they return ; but with a wise hesitation he forbore to speak in precise terms of this original state. He felt that neither water, nor air, nor fire, nor any other known thing, could be the principle of the universe. These are limited and complex, and they exist but for a time and perish ; the principle must be infinite, formless, and eternal. Nor is it enough for us to conceive matter in its simplest form. Matter has qualities such as Heat and Cold, Moisture and Dryness, which seemed to him to be incapable of analysis, and to be therefore Primary. Matter again is dead, and without an original Energy it cannot change or develop. Lastly, in view of the profound differences of things, he felt he had no warrant for following Thales in reducing them all to one element. By Anaximander, therefore, the original substance was conceived as the sum of the elements of different things, existing in a formless mass, possessing the primary qualities, and acted on by a latent force. As these elements combine and separate from the mass, individual things are formed. But the separation is only for a

time. In language which reminds us how close was the alliance in his day between philosophy and poetry, Anaximander says : "From this do all things come into being, and in this, as is meet, are they again dissolved, for each in turn pays to the other the penalty of injustice."

The influence of the previous age is still present. The principle of the universe, infinite and formless, recalls the *Oceanus* of Homer and the *Chaos* of Hesiod ; but to Anaximander it is less a subject of fixed belief than a statement of the limit which existing knowledge placed upon speculation. Science, he felt, must seek to reduce one by one the number of different elements, and must not begin by assuming that they are all forms of one and the same principle. Anaximander is said by Diogenes to have invented the gnomon, and by Pliny to have discovered the obliquity of the ecliptic ; statements which, at least, indicate that he occupied himself with science as well as with philosophy. [G. P. M.]

Grote : *Plato*, i. ch. i. Lewes : *Hist. of Philos.* i. Epoch 1.

ANAXIMENES, second half of the 6th Century B.C.

At a time when there appeared no sign of decay in the old beliefs save the attempt of the Orphic poets to systematise them, Miletus produced in ANAXIMENES yet another great thinker who followed in the steps of Thales. The independent spirit of Miletus, and the direct influence of Thales, may explain the fact that for a long time the new philosophy was thus associated with a single city. Afterwards it became needful to flee westward from theocratic influences, and take refuge in the colonies of the South Italian and Sicilian coasts. In some respects Anaximenes stands nearer in thought to Thales than to his immediate predecessor, Anaximander. He saw less difficulty in believing that all things have a common element, and therefore that they are transmutable, than in assuming a number of elements of which our senses can tell us nothing. The theory of universal transmutability did indeed transcend experience, yet experience pointed in that direction. Anaximenes held that the common element is Air, a substance more simple and more pervading than Water. Not only is it essential to life—it seems to be life itself. For did not ψυχή, the soul, mean breath ? And what is true of man appeared to Anaximenes true of the whole universe, which he conceived as a living organism. "Just as we," he said, "are dependent on the soul, which is air, so is the whole universe pervaded by breath and air." What, then, could experience tell of the developing force ? Air, as he said, is never at rest, and as it fills all space it must by motion be here condensed, and there rarefied. Clouds, therefore, and water, the sun, the moon, and the earth are but forms of air in various stages of condensation. Still resting upon known facts, he made one step more towards

simplicity of origin by including within his theory those qualities of things which Anaximander accepted as primary. *Moist* and *dry* express degrees of condensation, while heat is caused by rapidity of motion, the fire of the sun being thus due to its swift movement through the heavens.

The ancient mythology was still alive when Anaximenes held these views; yet are they among the most striking anticipations of the results of modern science. It may be added that Anaximenes, like Anaximander, devoted much attention to Astronomy.

[G. P. M.]

See under ANAXIMANDER.

HERACLITUS, first half of the 5th Century B.C.

HERACLEITUS, known as the "weeping philosopher" or the misanthrope, was born at Ephesus about the time of the outbreak of the Ionic revolt. The Ephesians kept strangely aloof from their fellow-Ionians in this brief struggle against the Persian power; and to the fact of this inability to join together for a common cause we may well attribute some of the contempt which Heraclitus felt for the popular voice and popular government, which made him withdraw from active life, and tinged his whole philosophy. The highest office in the city is said to have been his by hereditary right, but he refused to hold it. The bitterness of his feeling was so deepened by the banishment of his friend Hermodorus, that he withdrew himself from the society of men, and lived in the mountains alone. He sought to free himself from a world which seemed to him wholly selfish and full of vanities.

His philosophy earned for him the name of "the obscure." He conceived the principle of the Universe as a fiery ether, which not merely is the substance of all things but is the Universal Intelligence. From this, in strife, does everything proceed. There is no rest in Nature, only perpetual change; the generation of one thing means the destruction of another; and all things come into being to be merged again in the fire spirit. Of this spirit the mind of each man is but a detached and infinitely small part, and therefore liable to err. It is not by much learning that we can attain to true reason, but by bringing ourselves into accord with the universal mind; for all that is purely individual in us must be false.

There is here in germ the philosophy of Zeno the Stoic and of Marcus Aurelius. But the ideal of Heraclitus is rather that of Plato, who considered that the highest effort of the soul, distracted by the world, was to see dimly something of that Universal Truth with which it will become one when released from the prison-house of the body. In various forms the same ideal appears in modern philosophy, notably in the systems of Fichte and Hegel. [G. P. M.]

Lewes: *Hist. Phil.* i. Epoch 2. Grote: *Plato*, i. ch. i.

ANAXAGORAS, b. abt. 500 B.C., d. abt. 428 B.C.

ANAXAGORAS was born of a family of high position in Clazomenæ, in Ionia. Early in life he repaired to Athens, the most splendid period in whose history was then beginning. Through the nobility and gravity of his character, and his growing fame as a teacher, he gathered round him a band of friends and pupils ; among them, Pericles, whose friendship he retained throughout his life, and over whom he exercised the strongest influence. He taught Pericles, says Plutarch, to apply reason to Nature ; and, freeing him from a terrifying and arid superstition, gave him a religion of peace and good hope. But Anaxagoras had the common fate of teachers of new truths. His science was falsely represented as an attack upon religion. He was accused of blasphemy, and was saved from death only by the exertions of Pericles ; but he was banished from Athens. He retired to Lampsacus, where he died, honoured by its citizens. "Let the day of my death be a holiday for your children," was his answer to the request of how they might pay him honour. And so late as the second century B.C., Plutarch tells us, was the annual holiday still kept.

Anaxagoras, like Anaximander, understanding creation to be merely arrangement, held that the differences of things cannot be explained except by the existence of different elements. From all time these elements have existed, but uncombined and in chaos, the like mingled with the unlike. Then Mind appeared, he said, and reduced them to order. Like elements were joined to like, and thus the world was formed. What, then, is this forming Mind ? To Anaxagoras it was not a supreme Being outside the universe ; it was itself an element and material ; but, as Aristotle described it, unmixed with other elements, and more subtle, more pure than they. If Mind regulates the universe, then is there a principle of order which science may strive to comprehend. We may regard Anaxagoras as having been the first to feel the importance of this truth, and to see that it led to the rejection of Fate and Chance ; for these, he taught, are only the names we give to undiscovered Cause.

To him also belongs the signal merit of recognising, as Aristotle did more explicitly, that knowledge comes to us through sensation. And he established the distinction, developed in modern philosophy, between Objective and Subjective Reality, between things in themselves and things as they appear to us. To the latter, he held, is our knowledge limited. [G. P. M.]

Grote : *Plato*, I. ch. I. Plutarch : *Pericles*. Lewes : *Hist. Phil.* I. Epoch 2.

DEMOCRITUS, b. abt. 460 B.C., d. abt. 370 B.C.

DEMOCRITUS, known as "the laughing philosopher," was born at Abdera, in Thrace, a few years after the birth of Socrates. He

stands conspicuous among the men, not rare in early Greece, whom neither the possession of wealth nor the promise of power could lead away from the pursuit of Truth : men who represent the real spiritual life of their time. Impelled by the desire for a wider knowledge than the isolation of a Greek city could offer, Democritus passed many years in travel, having intercourse, as he tells us, with the most learned and the wisest men wherever he went. Their influence may, perhaps, be traced in his astronomy, which, in the close observation of Nature that it reveals, places him beyond his predecessors. The names of his lost writings, wherein he treated of almost every form of knowledge, suggest a mind which in its all-embracing width was like the greater mind of Aristotle. But none of his other speculations has had the fame, or has the importance, which belongs to his development of the theory of Atoms.

Matter is divisible into parts, and such part again into smaller parts. How far can this process be carried ? Not to an infinite extent ; for that is inconceivable. Our reason, which not less than our senses did Democritus hold to be a source of knowledge, requires us to believe that it has a limit. Ultimately, therefore, we reach particles of matter which are simple and indivisible. These particles or atoms, must, as Democritus imagined, differ from one another in size and form. They must be in constant motion, for we have no ground for supposing that motion is not as old as matter itself ; whence it follows that there must be space to move in, space unfilled by atoms. The unresting atoms combine, yet they never actually come into contact. They are separated from one another by intervals of space, whose varying minuteness we express by saying that one thing is more dense than another. As there is no contact, so even in their combined form does the motion of the atoms never cease. Thus Democritus explained the universe and its changes.

The theory was revived a century later by Epicurus, from whom Lucretius received it and gave it poetic form. Its importance is to be measured from the fact that it is in substance the hypothesis of Leibnitz and of the principal physicists of the last century. Stripped of the concrete forms which they received from the fancy of Democritus, atoms have become necessary symbols of thought.

Grote, Lewes : *ubi sup.* [G. P. M.]

LEUCIPPUS, b. probably some years before Democritus.

LEUCIPPUS is known to us only by the light which the fame of Democritus has thrown upon him. No separate record of him has come down save that he was taught by Zeno of Elea, the follower of Xenophanes and Parmenides, and that he first expounded the theory which Democritus afterwards developed. The aim, indeed, of that theory was to remove the distinction which the Eleatic school drew between the Absolute, or the only real existence, as it seemed to them, and the world of change around us. [G. P. M.]

HERODOTUS, b. 484 B.C., d. abt. 400 B.C.

The services which Thales rendered to Science, HERODOTUS rendered to history. Before him there is no trace even of a chronicle of events other than that of the epic poets, between whom and the philosophic Thucydides he forms the only link.

The experience of his life peculiarly fitted him for his task. Born at Halicarnassus in Caria, four years before the battle of Salamis, when the city was governed by alien and despotic rulers, he betook himself early in life to travel, aware that a civic career was closed to him. He visited almost every city of Greece ; he became familiar with every part of the coast of Asia Minor ; he made a long stay in Egypt ; and he reached even the distant Scythia. He returned to Halicarnassus to witness, probably to assist in, the revolt which freed the city from the Persians and made it a member of the Athenian union ; but for some reason, having become unpopular, he turned to Athens, where he dwelt for many years. Yet he still lacked the rights of citizenship, which a Greek esteemed essential to the dignity of a man. So he joined the colony which had set out in 445 B.C. to found Thurii in Italy. There, it is supposed, he wrote his history and spent the rest of his life.

Herodotus proposed to relate the causes and the course of the war between the Greeks and the barbarians. He wrote with the recollection of the glorious close of the struggle still fresh in men's minds, in that brief period when a feeling of security filled all Greece. The war itself, however, is only the goal to which he moves. As each nation appears on the scene, the current of his story stops, that he may pour out his full knowledge concerning it : not merely chronicling the vicissitudes of its dynasties, but with a true instinct dwelling in curious detail on its religion, superstitions, and habits. Since his day the story has never failed to fascinate, told as it is in a style universally recognised as a model of simplicity and grace.

Herodotus had the first great quality of a historian—a desire to separate what is true from what is false or uncertain. Telling of the marvels of foreign lands, he speaks with care and with little exaggeration ; and his testimony, in spite of repeated attacks, has been emphatically confirmed by modern research. Yet in its higher sense, as something more than a chronicle, history is only beginning to separate itself from fable. It could not advance so rapidly as science, for it could not so rapidly free itself from theology. It deals with facts which seemed too subtle and intricate to be explained in any other way than by divine intervention. But its progress is assured when this intervention is regarded no longer as erratic and wayward, but, as it seemed to Herodotus, regular and itself subject to law. To him, as to Æschylus, all experience declared, in the life of nations as in the life of individuals, the

presence of a power dispensing rigorous justice. Thus there was dimly recognised a continuity in the events of history.

[G. P. M.]

Herodotus : Eng. trans. by G. Rawlinson, 4 vols. (for life and account of history, see vol. i. ch. i. ii. iii.). Grote : *Hist. Greece*, part ii. ch. 20, 38. J. B. Bury : *The Ancient Greek Historians*. J. P. Mahaffy : *Problems in Greek History*, ch. v. The History is in the Positivist Library.

THALES, b. 640 B.C., d. 550 B.C.

THALES is commemorated as the initiator of abstract thought, scientific and philosophic. In his time, and through his teaching, there first began the use of a true scientific method. For it may be said that he first employed abstract reasoning in investigation, and first taught that natural phenomena must have natural causes.

He was born of a noble family of Miletus, the greatest of the twelve Ionian cities. Honours and wealth were within his reach, but he sacrificed them that he might give himself to a life of contemplation. Yet he became no mere recluse. So high stood his reputation for practical sagacity, the fruit of a life of over ninety years, that he was accounted the greatest of the Seven Wise Men, his pithy sayings were treasured up, and it was still remembered in Herodotus' time how he had perceived that the only hope of maintaining the independence of the Ionians lay in a real federation of their cities.

Hitherto the search for knowledge had gone little beyond the immediate needs of life. The natural desire for some explanation of the universe had been satisfied by mythology, and men had rested content in the belief that the lightning, the eclipse, and the storm were the manifestations of the gods. A new era opened in the history of thought when Thales, finding his experience in conflict with the old poetic fictions, faced the problem once more. He saw that no one called in a deity to explain the simple facts of everyday life, where the natural causes are obvious. He saw, too, that as one's knowledge grows, natural causes come to light which were before unseen. Might there not, then, be some natural cause for all phenomena whatsoever ? Thus he was led to speculate on the origin and growth of the universe. His experience told him that matter may assume different forms ; and he reasoned, as we may suppose, that when a new thing is formed it cannot contain any substance which did not exist before. The polytheistic dogma of Metamorphoses had already made him familiar with a wider view of the same conception ; so that he allowed himself to pass from the seen to the unseen, and to feel that beneath the diversity of the world there is in all things some common substance or principle from which by natural means they develop. Such a substance he saw in water or moisture, a thing essential to life, and, as it seemed to him, absolutely simple in character. From the first

there was latent in it a power of change and development whereby it transforms itself into all the variety of the universe.

But these general or philosophic speculations, dealing with problems far beyond his competence to solve, could lead to no definite result, and are of interest chiefly as indicating a new epoch in the history of human thought. Of more permanent value were his researches in positive science. The search for an original principle explanatory of the universe went side by side with the process of analysis, the resolution of complex wholes into their simplest elements, the abstraction of these last, and the discovery in them of uniform law. Thales is said to have taught geometry to the priests of Thebes. Others have maintained that he learnt it from them. We know now that Egyptian geometry was limited to special figures and volumes. To Thales and his followers is due the geometry of the lines which bound them ; a conception which gave an impulse to science comparable to that which the introduction of alphabetic characters gave to intellectual efforts generally. The two discoveries associated with his name are (1) that the sum of the angles of a triangle are equal to two right angles : and (2) that the sides of similar triangles are proportional ; to which may be added the conception of geometrical loci.

The first result of the new geometry was the reconstitution of Astronomy ; which though still dependent on graphic methods, advanced from mechanical representation of the heavenly bodies to diagrams. Lastly, the dogma of Metamorphoses became in Thales's hands a real preparation for the theory of atoms ; in this direction the line from him to Democritus is unbroken. As special sciences developed, the belief in the unity of Nature was gradually abandoned ; yet was still retained in the modified form of Aristotle's theory of the four elements. But the fame of Thales will rest mainly on his mathematical discoveries. He founded the geometry of lines : his two problems laid the foundation of algebra by instituting respectively an equation and a proportion : and he thus introduced the first type of a natural law, *i.e.* the expression of a fixed dependence between varying quantities ; the disentanglement of constancy in the midst of change. [G. P. M.]

P. Laffitte : *Grands Types*, ii. 123. G. J. Allman : *Greek Geometry from Thales to Euclid*. Lewes : *Hist. of Philosophy from Thales to Comte*, i. Epoch 1. *Phil. Pos.* v. 53. *Pos. Pol.* iii. 248-251.

SOLON, b. 640 B.C., d. 559 B.C

SOLON was born at Athens of an ancient and noble family. When young he travelled as a merchant through many parts of Greece and Asia Minor. He early became known as a keen and deep observer of character and conduct, and as a man capable of wise counsel. With Thales, Bias, and others, he was classed among the Seven Wise Men of his time. His thoughts were expressed in

poems: the fragments which survive show him rather as a practical moralist than as a speculative thinker. In any case, it is on his civic work that his fame principally rests.

In the struggle of Athens against Megara for the possession of Salamis, he took a leading part. Still more important was his intervention in the fierce quarrels then raging between rich and poor. Large numbers of citizens were working as slaves, and had even been sold to neighbouring states for debts that they could not otherwise discharge. Civil war was imminent. In 594 B.C. Solon was chosen one of the archons for the year, and was invited to propose a settlement of these difficulties. His friends urged him to become the dictator or despot of the city. But this he steadily refused. With complete freedom from personal ambition, he set himself to the difficult work of making a practical settlement. He annihilated all contracts in which the debtor had pledged his person or his children. He abolished many of the land mortgages; he brought back from distant cities many of the debtors who had been sold as slaves. He restored many poor people to the privilege of citizenship which they had forfeited.

All this involved confiscation. The money for the redemption of slaves was obtained by debasing the coinage so that four parts of silver were used when five had been used before. But it was seen that Solon gained nothing himself—indeed, that he had become a poorer man Perfect trust was felt in his devotion to the public good, and the best proof of his wisdom is that the wiping out of debt, once done, never needed repetition, and that the law between debtor and creditor remained less barbarous in Athens than in other States of antiquity.

Solon made other changes in the constitution which prepared the way for the gradual admission of freemen into a share of government and of judicature. He was, however, no democrat; much power was still reserved by his laws to property and rank. "I stood," he says in one of his poems, "with the strong shield cast over both parties, so as not to allow an unjust triumph to either."

Many other of Solon's laws were wise and humane. He encouraged trade and industry. He made prudent regulations for the transmission of wealth by will. He punished slanderous insults either of the living or the dead. He relaxed the extreme severity of previous laws against theft and crimes of violence. One of his laws became specially famous; in times of political dissension he made it compulsory for each citizen to form and express his judgment.

He lived to the age of eighty. The last year of his life was distinguished by his patriotic resistance to the usurping tyranny of Pisistratus. His life presents one of the noblest types recorded in history of a thinker who never ceased to be a citizen.

[J. H. B.]

Grote: *Hist. of Greece*, part ii. ch. 11. Plutarch: *Solon*.

XENOPHANES, b. abt. 580 B.C., d. abt. 500 B.C.

XENOPHANES was a contemporary of Pythagoras; and, like him, an emigrant from Ionia to Italy. He was born at Colophon, near Ephesus, and ultimately settled at the Phocæan colony of Elea, on the gulf of Poseidonia, near Pæstum. His thoughts were uttered in poetry, of which only a few fragments have come down to us. So far as we can judge, they are an indignant protest against the polytheistic principle of fashioning gods in the likeness of men, and an attempt to lead men to a purer form of worship. Men, he said,

> "foolishly think that Gods are born like as men are,
> And have too a dress like their own, and their voice, and their figure;
> But if oxen and lions had hands like ours, and fingers,
> Then would horses like unto horses, and oxen to oxen,
> Paint and fashion their own god-forms, and give to them bodies
> Of like shape to their own, as they themselves too are fashioned."

"There is but one God," he said,

> "the greatest of gods and of mortals:
> Neither in body, nor yet in thought, is he like unto mankind."

Aristotle says of him that he was the first who regarded the universe as one great whole; "looking up into the vault of heaven, he declared that the One was God." He was profoundly convinced of man's incapacity for absolute knowledge. "No man," he said, "knows clearly about the gods or the universe: even if he speak what is true, he himself does not know it to be true: all is matter of opinion." The varied views of man as to the facts of the world round him were relative to his own faculties, not an expression of absolute knowledge. The principal disciple of Xenophanes was Parmenides, who expressed the contrast between absolute unknowable existence and the study of shifting multiform phenomena with even stronger emphasis and fuller detail.

[J. H. B.]

Grote: *Plato*, I. 16-19. Lewes: *Hist. of Philosophy*, I. Epoch 1.

EMPEDOCLES, b. abt. 500 B.C., d. abt. 430 B.C.

EMPEDOCLES was born at Agrigentum in Sicily. He came of an old family, and inherited much wealth, a large part of which was spent in bestowing dowries on the poor maidens of the city. He took the popular side in politics, and gained such influence that he was offered the dictatorship of the republic. This he refused; preferring the spiritual influence following from his wide knowledge, his utterance of mystical and oracular sayings, and his free-handed liberality. Like Pythagoras and Plato, he is said to

have spent much time in Eastern travel. Few details of his life are known to us with certainty; the story of his suicide in the crater of Mount Etna is but one of many fables reported of him.

His philosophical principles were embodied in a poem, of which a few fragments have survived. The distinctive principle is the Evolution of the world from the four elements of Fire, Air, Water, and Earth; while the reverse process of Dissolution was going on simultaneously under the varying struggle between the opposing forces of attraction and repulsion, metaphorically spoken of as Love and Hate. This principle, far more nearly approaching the truth than the vague attempts of the earlier Ionian school, he applied in detailed explanation both of the Kosmos and of living organisms. He says—

"Fools who think aught can begin to be which formerly was not,
Or that aught which is can wholly decay and perish;
This too is truth I now unfold; no natural birth-time
Is there of mortal things, nor is death's destruction final;
Nothing is there but a mingling, and then separation of the mingled;
These being called a birth and a death by ignorant mortals."

From Pythagoras, or perhaps from independent converse with Egyptian or Eastern thinkers, Empedocles adopted the doctrine of Metempsychosis. The sufferings of this and other lives were in expiation of previous sins. Only by gradual mounting upward through the scale of existence could the society of the gods be regained. [J. H. B.]

Grote: *Plato*, i. ch. 1. Lewes: *Hist. Phil.* i. Epoch 2. Lucretius, i. 727. Fragments by Sturz and Karsten.

THUCYDIDES, b. 471 B.C., d. abt. 400 B.C.

THUCYDIDES, son of Olorus, was a native of the township of Alimus in Attica. Through his mother, Hegesipyle, he was connected with Miltiades. When a boy, he is said to have heard the history of Herodotus recited at the Olympic Games, and to have been moved to tears. He studied philosophy under Anaxagoras.

He was forty years old when the great war broke out between Athens and Sparta. In the eighth year of this war he was in command of an Athenian fleet, which failed to save one of the most important possessions of Athens, Amphipolis, a city on the Strymon, from the Spartan general Brasidas. For this failure he was brought to trial and banished. He did not return from exile till twenty years afterwards, in 403. The exact time and place of his death are uncertain. To his exile we owe the immortal history of the Peloponnesian war.

While purporting to be an accurate record of events as they passed before him year by year, this history gives proof of the highest

philosophic power, that of analysing and estimating the social phenomena of his time. He was convinced, he tells us, of the critical nature of the struggle between the two great powers of Hellas. Human nature was the same always ; and a careful statement of facts, from which all legend should be rigorously excluded, would make his work less attractive for present readers, but more precious to posterity.

Masterly portraiture of great social facts, with minute accuracy of detail—such is the character of his work. The contrast between Sparta and Athens—the first, a premature and abortive Rome, absorbed in one-sided military training ; the second, a free State, in which every function of civic life, war, commerce, philosophy, art, had free play—is strongly drawn. Their mental culture did not make the Athenians less brave in danger, or more spiritless in defeat. "Their lives they spent for their country as though not their own : their counsels they cherished as the dearest possession, to use them for her service" (Thuc. i. 70). There were no privileged castes among them : "All take their share of public burdens, all are free to give their judgment as to public welfare ; we are free from intolerance," Thucydides records Pericles as saying ; "we persecute no one for following his own pursuits. Our life is humanised by public festivals and private refinement. We cultivate beauty without luxury, and wisdom without weakness." Not less striking is his picture of the plague at Athens, and of the lawlessness and demoralisation that followed it (ii. 47-53). Most impressive of all is his description of the factious strife between the oligarchical and democratical parties at Corcyra, which he gives as a type of what went on everywhere through the cities of Greece, and which was fated to continue till their independence was suppressed first by Macedon, afterwards by Rome. The same passions, the same intertwining of private with public hatreds, as those which raged between Guelph and Ghibelline in the Italian republics, or in Paris during the Reign of Terror and the reaction which followed, are depicted by Thucydides with inimitable truth and power. [J. H. B.]

Thucydides : *History*, Eng. trans. by Hobbes ; by Jowett, 1881, 2 vols. ; by H. Dale (Bohn's Lib.), 2 vols. ; and in Loeb Classics, 4 vols. (proceeding). Grote : *Hist. Greece*, part ii. ch. 50, 51, 57. J. B. Bury : *The Ancient Greek Historians* (1909). J. P. Mahaffy : *Problems in Greek History*, ch. v. R. C. Jebb : *The Speeches of Thucydides* (in *Hellenica*, ed. by E. Abbott). *Pos. Pol.* iii. 262. The History is in the Positivist Library.

ARCHYTAS, b. 428 B.C., d. 347 B.C.

ARCHYTAS of Tarentum, the last and greatest of the scientific thinkers belonging to the Pythagorean school, was contemporary with Plato, and is said to have been one of his teachers when he visited Italy. In any case he was a firm friend of Plato, and saved

his life when it was endangered by the younger Dionysius. The respect felt for him by his fellow-citizens appears from the fact that he was chosen seven times as their general, with powers over the confederation of the cities of Magna Græcia. Many stories are told of his kindness to children and humanity to slaves.

Aristotle wrote a treatise, which has not come down to us, on the philosophy of Archytas. Such fragments of his philosophy as survive are too slight, and their authenticity is too uncertain, to enable us to estimate their value. But recent researches have brought into prominence the importance of Archytas as a mathematical discoverer. His solution of what was known as the Problem of Delos—the insertion between two given quantities of two mean proportionals—which is given in full in Professor Allman's work, proves great original power and the possession of a large stock of geometrical knowledge. We see that "he was familiar with the generation of cylinders and cones, and had also clear ideas on the interpenetration of surfaces ; he had, moreover, a clear conception of geometrical loci, and of their application to the determination of a point by means of their intersection" (Allman, p. 115). It is to be added, that Archytas was the teacher of Eudoxus of Cnidus, the most important name in mathematics between Pythagoras and Archimedes. [J. H. B.]

G. J. Allman : *Greek Geometry from Thales to Euclid.*

PHILOLAUS, contemp. of Plato.

PHILOLAUS, a native of Crotona, was a distinguished disciple of the Pythagorean school. Cicero describes him as the teacher of Archytas. He is said to have been the first to put the principles and traditions of the school into writing. Plato, when he came to the court of Dionysius in Sicily, is reported to have bought his works for the sum of forty minæ (£160). Towards the close of his life Philolaus was suspected of aiming at political usurpation. We have no facts to prove or disprove this.

Of Philolaus, as of Archytas, it has to be said that the fragmentary quotations from the writings, scattered through the works of later writers, are not sufficient to tell us more than that he occupied himself in developing the theory of numbers and the laws of geometry, as the basis for explaining man's life and position in the universe ; devoting special attention to the five regular solids, each of which was supposed to correspond to one of the elemental substances of which the universe was composed.

[J. H. B.]

A. Boeckh : edition of Fragments of Philolaus. A. E. Chaignet : *Pythagore.*

APOLLONIUS OF TYANA, 1st Century A.D.

APOLLONIUS was born at Tyana, in Cappadocia. He studied grammar and rhetoric in Tarsus, where we may think of him as sometimes meeting the young Jew Saul, also a student in the same city. Apollonius found Tarsus too luxurious and distracting for study, and retired to Ægæ, in Cilicia, where he studied medicine and philosophy in the temple of Æsculapius. There he met Euxenus, a Pythagorean, who filled him with enthusiasm for the great master, so that he adopted the Pythagorean discipline and mode of life. He abstained from animal food or clothing, slept on the ground, and observed the rule of five years' silence.

He then began a course of travel in the East, far more accessible since Alexander's conquest than to earlier philosophers. At Nineveh he met Damis, who became his faithful friend and fellow-traveller, and who left records of his adventures. They travelled together in Egypt, Africa, Italy, and Spain. But the western coast of Asia Minor, and more particularly the city of Ephesus, would seem to have been their headquarters. In this and in neighbouring cities, he seems to have exercised great social and moral influence ; repressing luxury and excitement, and calming troubled minds by the fascinations of a dignified presence and exalted nature.

That he was credited with miraculous powers is true, but not to be charged against him. Those who read his biography by Philostratus will not carry away the impression of an impostor or charlatan, but of a man sincerely devoted to his fellow-men. He was keenly interested in the maintenance of Roman government under wise rulers. When in Egypt he became acquainted with Vespasian, and afterwards with his son Titus. He was urged to join in conspiracies against the Empire, but firmly refused. It was not, he said, self-government, but it was far better than aristocracy or oligarchy (Philost. v. 34-42). "As one man excelling in virtue may change democracy so as to make it seem dictatorship, so the government of one, doing and providing all for the common good, is, in the true sense, a republic."

When Domitian succeeded Titus, and began to listen to spies and informers, Apollonius expressed his disapproval in very strong language, which was not long in reaching the ear of the tyrant. He anticipated prosecution by voluntarily going to Rome, just as Domitian had driven all philosophers away from Rome. He was thrown into prison, from which he was soon summoned to a private interview with the Emperor, followed by a public trial. The dignified and respectful firmness with which he maintained the claims of philosophy, and refuted the malignant calumnies of his accuser, disarmed Domitian's suspicious temper, and he was acquitted. He left Italy for Greece. There he was received at Olympia with much enthusiasm, and soon after returned to Ephesus, where he

appears to have been in friendly relations with Nerva, shortly destined to succeed Domitian. The place and time of his death are uncertain, but a shrine was erected to his honour in his native city, which long remained an object of reverence.

In his biography by Philostratus there is no sign of any rivalry with the life of Christ, or of any Christian saint. For centuries he was reviled as an impostor. Justice has at last been done to him as an honourable type of the men who, since Pythagoras, and yet more since the establishment of the Empire, aimed at the renovation of the Western world through agencies less intense and fervid, but also less subversive and more human, than those employed by the early Christian Church. [J. H. B.]

Philostratus the Elder: *Life*, trans. by Berwick, 1809; *The Life and Epistles of Apollonius of Tyana*, Greek text and Eng. trans. by F. C. Conybeare, 1912 (Loeb Classics). *Pos. Pol.* ill. 283.

PYTHAGORAS, b. abt. 580 B.C., d. abt. 500 B.C.

To understand the life of PYTHAGORAS, it is needful to consider what the problems were which he set himself to solve.

The poems of Homer show us the Hellenic race widely scattered over the coasts and islands of Greece and Asia Minor, leading an active life of war and commerce, fond of athletic exercises, keenly alive to poetry, music, and decorative art. They had received the inheritance of the old theocracies; the rules of right and wrong were closely knit up with the worship of the gods. Priests still bore sway, and could dictate to kings; who yet were impatient of their influence, as the opening lines of the *Iliad* suffice to prove. In the centuries that followed, the priestly functions became more and more dependent on the regal. Religious beliefs were maintained, and, as an inspiring influence in art and poetry, were still potent. But their restraining influence on political and social life was deeply undermined. The kings, in getting the better of the priests, lost the religious basis of their own ascendency: the aristocracies which followed soon gave way to turbulent and unstable democracies. These had little but the name in common with the democracies of modern Europe: since the Demos was simply an assemblage of tradesmen maintained by the labour of slaves. The brilliant but very fleeting moment, during which the townsfolk of Athens were capable of admiring the poetry of Æschylus and Sophocles, must not blind us to the fact that the democracies of the Greek world were almost uniformly sterile of good result. Their venality and turbulence alienated the best minds from civic action, and diverted them into channels fruitful for the after life of humanity, but with fatal loss to their country's immediate service.

To this withdrawal of the great thinkers of Greece from the civic

life around them there were some exceptions: and the principal exception is Pythagoras, who deliberately set himself to reform it. Great obscurity hangs over the details of his life. That he was born in Samos; that he came into contact with Thales, that by the master's advice he visited Egypt, where he stayed many years, learnt the language, and became imbued with the thought and traditions of the priesthood; that he probably extended his travels to Assyria; that on his return to Samos, finding it subject to the despotism of Polycrates, and noting the rapid growth of Persian dominion in Ionia, he established himself in Crotona, a flourishing Greek city on the South Italian coast,—is all that can be said with approach to certainty of his youth and early manhood. Possibly his choice of Crotona was due to its celebrity for the gymnastic exercises and the arts of Hygiene. Be this as it may, here it was that he founded his brotherhood; a society of which the members were carefully chosen by himself on grounds of moral and intellectual superiority, and whose purpose it was to effect a reformation of public and private life.

Admission to the order was obtained through a long and systematic course of training; and it would seem that there were at least two stages of membership before complete initiation was reached. To each class women as well as men were admitted. Early in the course came a long period of silence, in which the neophyte conformed his life to the rules of physical and moral training laid down for him, without presuming to teach others except by his example. It is probable that a large proportion of the members advanced no further than this stage.

Pythagoras left no writings. Our knowledge of his teaching and his institutions depends on the tradition of his disciples; and, as in the case of the early documents of Christianity, the date of those ancient writers who speak of him must be carefully noted. Among the earliest of these writings are the *Golden Words*, a sort of religious catechism in verse. Among its percepts are the following:

"Honour the deathless gods, as the law ordains; reverence an oath; reverence great heroes, and do them the rites that are due; honour thy parents and kinsfolk; make the best men thy friends. Be gentle in thy speech, serviceable in deed. Be not angered with thy friend for a slight offence; bear with him while thou canst; the bond will give thee power. Learn to be the master of these four things: greed, sloth, lust, and anger. Do no vile thing either alone, or with others; and, above all things, keep reverent watch over thyself."

"Learn how to save and how to spend. What sorrow may come in the lot that the gods send thee, bear it patiently; healing it if thou canst, and taking thought that the lot of good men cannot be wholly grievous."

"Of bodily health thou shouldest take sufficient care; in meat, food, and exercise observing such measure as will not harm thee. Suffer not sleep to fall on thy wearied eyelids before thou hast thrice considered each deed of the day: When did I transgress? what have I done? what duty have I left undone? and if thou hast played the coward, repent; if otherwise, be glad."

"These things if thou observe, thou wilt reach the track of divine virtue. Ay, by him who gave to our soul the fourfold gift, fountain of ever-living Nature, this is so. Thus wilt thou come to know the order of the deathless gods and of men. Thou shalt see, so far as it is permitted thee, law uniform throughout, so that thou mayest neither hope things hopeless, nor yet be blind to what will come. Thou shalt see thus the woes of men are of their own choice; they will not look or listen to the good that lies near them; few are they who know the road of deliverance. A doom is on their reason, warping it; like rolling stones they are borne hither and thither in endless misery. For grievous strife is born within them and follows them through life, and they know it not. This it is we should not tempt to come near us, but keep far away."

Many other wise and deep sayings of Pythagoras have survived. That the slavery of passion was harder than that of despots; that man came nearest to God when he was truthful; that it was better to throw a stone at random than scatter an idle tale; that the highest refinement was to put up patiently with vulgarity; that when a man's country went wrong he should behave to her as to his mother in like case;—these may serve as samples of the rest. Enough has been said to indicate the general purpose and scope of his work; it was a purification of moral life, helped by intellectual discipline, and aiming at social renovation. By the intellectual discipline it was distinguished from all previous attempts at reformation, Judaic or Oriental. The abstract sciences of number and of space, as distinguished from the arts of counting and measuring visible quantities, were dawning upon the world. It gave the first conception of a uniform order of Nature (*φύσιν περὶ παντὸς ὁμοίην*), which, if carefully studied, would show to men the full scope of their destiny, while guarding them from unlicensed hope. It would bring resignation; would direct energy into its lawful channels; and thus help the attainment of self-mastery, and of that inward peace in which alone true freedom is to be found. On space-relations, reduced to laws of number, he saw that the whole fabric of Nature rested. His doctrine, that numbers were the formative principle of things, rested on a strong, though doubtless confused, perception of the universality of law. Imperfectly he perceived that, in a given group of phenomena, the variations of each were connected with the variations of the rest in ways which, when perfectly known, could be expressed in number.

Meanwhile, as a social institution, number was, he considered, of very great importance. The first three numbers, corresponding to Synthesis, Combination, and Progression, play, as Comte has shown (*Synthèse Subjective*, ch. i. 108 *et seq.*), a far more potent part in mental processes than is commonly supposed. In the Pythagorean school, the point, the line, the surface, and the solid corresponded respectively to the first four numbers ; the addition of these produced the tetractys (quaternion or decade) which was of great importance in their system. Pythagoras is commonly credited with the discovery of the law of the square of the hypothenuse, with the construction of five regular solids, with the dependence of musical tones on the length of vibrating strings, with the law of reflection of light, and with other physical and geometrical truths. These, important as they might be, were with him wholly secondary to his governing purpose, which was to use science as a regulating principle for the discipline of life. This purpose remained unfulfilled ; but the school of mathematics developed, on his impulse, by his followers, led to results the importance of which it is impossible to exaggerate.

He was a man of commanding presence, winning speech, and prompt insight into character. His influence was maintained, so far as we can judge, for twenty or thirty years. It is said that, as in Florence when Savonarola taught there, a great moral reformation was effected in Crotona on his arrival ; that two thousand persons were converted at his first preaching ; that incontinence and luxury were repressed ; that women threw away their ornaments and dressed in simple attire. It rests on better evidence that the Supreme Council of the city sought his advice, and invited him to the presidency, which he declined to accept. His wife and daughter are said to have taken precedence of other women in religious processions. These and other stories may be exaggerated ; but it is certain that his influence and that of his brotherhood was wide and deep. Branches were established in Sybaris, Metapontum, and other cities of the South Italian and Sicilian coasts.

Whether, like the Jesuits, they gave just offence by unwise interference in political contests, we shall never know ; though it is certain that such interference was systematically discouraged by the Master. That offence was given is but too certain. The influence of the brotherhood was in favour of political stability, and against democratic change. It provoked at last a violent reaction, ending in the burning of their meeting-house, the massacre of many members of the order, and the dispersion of the rest. Whether Pythagoras perished with his disciples, or died a few years afterwards at Metapontum, is uncertain. As a political force the brotherhood ceased to exist ; but as a religious sect and a philosophical school they held together for two centuries. Even then the memory of them survived ; individual thinkers, like Apollonius of Tyana, carried on their tradition ; and the revival of the school in the

third and fourth centuries of the Christian era is a fact of moment in the controversies of that time.

Pythagoras's scheme of renovation was doomed to failure because his intellectual basis, though real, was insufficient. He was right in his instinct that the scientific study of the order of Nature, so far as man is affected by it, must be the basis of human action. He was right in regarding the new sciences of Geometry and Number as the foundations on which that order rested. All the facts of life, physical, biological, social, are, in principle, capable of precise measurement, were only our observing and reasoning powers sufficient, first to put the facts into equation, and, secondly, to solve the equation when formed. But only a deity could so geometrise. By the human race no adequate conception of the order of Nature could be reached otherwise than through slow ascent of the scale of sciences, beginning with the geometry of Thales and Pythagoras, and completed, at least in outline, by the Sociology and Ethic of the nineteenth century.

With wonderful prescience, Pythagoras had grasped the principle that a spiritual power should stand apart from practical government, and limit itself to wise counsel. The Catholic Church of the Middle Ages applied this principle afterwards on a larger scale, though without full recognition of its scope. As demonstrated scientifically by Comte, it stands now as one of the corner-stones of Social Statics. But the principle was wholly alien to the ancient world; and the misconception of it by the disciples of Pythagoras was the immediate cause of their destruction. They were drawn into fatal collision with the State; and would have been so even had the State been less intolerant and jealous than the democracy of Crotona.

Thus he failed; but his failure left great results. For, in the first place, it established an ideal of moral and social reform based on philosophical truth which survived the Middle Ages, inspired the Humanists of the Renaissance, and counted for much in the religious renovation instituted by Auguste Comte. How the ideas of Pythagoras worked upon Plato, and, through him and his Alexandrine successors, prepared the way for the Catholic Church, we shall see afterwards. (PLATO, *infra*.)

In the second place, the extreme value attached by Pythagoras to mathematical science as the basis of the order of Nature led to a concentration of energy upon geometrical research, which, by preparing the way for Archimedes and Hipparchus and their modern successors, became a force of the greatest moment in the after history of mankind. The special discoveries of Pythagoras himself have been, perhaps, exaggerated. The well-known equation of the square of the hypothenuse (Euc. *Ele.* i. 47), empirically discovered by the old theocracies, had been included in yet more important discoveries of Thales. But of the manual of geometry compiled by Euclid, it is now recognised that a large part was elaborated

between the sixth and the fourth century B.C. by the followers of Pythagoras. [J. H. B.]

Grote : *Hist. Greece*, part ii. ch. 37 ; *Plato*, i. ch. i. G. J. Allman : *Greek Geometry from Thales to Euclid*, ch. ii. *Pos. Pol.* iii. 281-3.

ARISTIPPUS, fl. abt. 400 B.C.

ARISTIPPUS was a rich citizen of Cyrene, who came to Athens for the sake of the teaching of Socrates. He was a man of easy, inactive temper, though keenly alive to the pleasures of mental culture. Xenophon tells us that Socrates tried to rouse his ambition and energy by telling him the fable of the choice of Hercules, to whom the two paths of life, that of effort and that of pleasure, were pointed out in youth by two visionary forms representing Virtue and Vice. But the ideal of Aristippus lay neither in the direction of strenuous ambition nor of sensual pleasure, but in that of a man who, while enjoying, each in their degree, the pleasures life could bring, should place the higher above the lower and should be the slave of none. Some of the sayings recorded of him are characteristic. Asked of what use was philosophy ; "To be able," he said, "to live as we do though all laws should be abolished." "It is better to beg than to be ignorant ; to want money is a less evil than to want humanity." An advocate whom he had engaged to defend him in a law court asked him of what use had Socrates been to him : "I owe it to him," he replied, "that the things you said in my behalf were true."

He instructed his daughter Aretê in his principles, which she handed on to her son, named after her father. The school of thought founded by Aristippus, and sometimes called the Cyrenaic, is best represented by Epicurus, whose name it commonly bears.

[J. H. B.]

Diogenes Laertius, ii. 8. Grote : *Plato*, iii. 530-61.

ANTISTHENES, b. 440 B.C., d. 370 B.C.

ANTISTHENES, an Athenian, was one of the most constant associates of Socrates. He was attracted to him not by the pleasure of intellectual discussion, but by his self-denying and ascetic life. Socrates had said that the gods had no wants, and that those who had fewest came nearest to the gods. This was the guiding maxim of the life of Antisthenes. He professed disdain for philosophic speculation or scientific study, and taught that a true philosophic career consisted in an ascetic life, led with entire indifference to enjoyment, wealth, or power. He engaged in controversy with Plato, whose lofty speculations on a world of ideal existence he despised ; and whose stateliness of life was wholly foreign from his own ideals. He and his pupil Diogenes were the founders of the Cynic, or ascetic,

school of philosophy. From them, shortly afterwards, sprang Zeno, the founder of the Stoic school, equally severe in doctrine, but not so regardless of the decencies of life.

The contempt for science shown by Antisthenes and his followers marks the severance between Greek science and Greek philosophy. Henceforth science was pursued by specialists; and philosophy tended to degenerate into wordy and windy rhetoric. The Cynics are called by Grote "a mendicant order in philosophy." [J. H. B.]

Grote: *Plato*, iii. 505-530. Lewes: *Hist. Phil.* i. Epoch 5. *Pos. Pol.* iii. 289.

ZENO, abt. 340-260 B.C.

ZENO, founder of the Stoic school, was born at Citium, in Cyprus. His father was a merchant, and he followed this pursuit for some years, till, after a shipwreck in which he lost his cargo, he landed at Piræus. There, in a bookseller's shop, he read Xenophon's *Memoirs of Socrates*; and, on asking where such men were now to be found, the shopman pointed out Crates, the Cynic, who was passing by. Under him and Stilpo of Megara he studied for some years, but finally opened his own school of philosophy at Athens, in the Stoa, or Porch, decorated with the frescoes of Polygnotus. Hence the disciples of the school were called Stoics.

In Athens he lived much respected for the rest of his life, which was prolonged to old age. A flattering letter from Antigonus of Macedon has been preserved, inviting him to his court; as also Zeno's reply that he was himself too old, but would send two of his best disciples.

His philosophy, as developed by himself and his successors, claimed to present a complete scheme of thought, logical, physical, and ethical. It was a protest against scepticism in opinion, and self-indulgence in action. But the severance of philosophy from science, which Socrates had initiated, and which had now become complete, deprives his system of intellectual value. Of his Ethic, the principal doctrine was "to live according to Nature." This, he said, implies living virtuously, for Nature leads to Virtue. The Stoic system commended itself to the Roman character; and its transportation to Italy gave it a coherence and reality which it had not before possessed. [J. H. B.]

Lewes: *Hist. Phil.* i. Epoch 8. *Pos. Pol.* iii. 289.

CICERO (*Marcus Tullius*), b. 106 B.C., d. 43 B.C.

Marcus Tullius CICERO was born at Arpinum, in Central Italy, where his family occupied a leading position. He was well educated in Greek literature, and was specially trained for the legal profession.

At the age of seventeen he served for a few months as a soldier in the Marsic war; but oratory and Greek philosophy were his principal pursuits. He soon became prominent in the law courts; and, when thirty years old, held the office of quæstor in Sicily; his duty being to supervise the corn supply of Rome. Here it was that he discovered the tomb of Archimedes. Three years afterwards we find him conducting his celebrated prosecution of Verres, the unjust and corrupt governor of that province.

At forty, he became prætor, B.C. 66, and two years afterwards, consul. He now joined the aristocratic party, which he had previously opposed. He crushed the democratical conspiracy of Catiline with vigour, and even with cruelty; for he had the principal conspirators executed without trial; an act which led to his own banishment. Cicero cannot be called a great or wise politician. That he should have opposed the democratic dictatorship of Cæsar was pardonable; not so, that he should have accepted favours from Cæsar, and yet have displayed indecent joy at his assassination. His vehement attacks on Antony, whom he soon saw to be as ambitious as Cæsar without Cæsar's capacity or virtues, led to his own death at the close of the following year.

Cicero's true fame rests on his philosophical writings. He was one of the principal channels through which Greek thought and culture diffused itself in the Roman world. His philosophy shows the enlargement of view that followed from the establishment of the Roman State. Two conceptions became much clearer than they had been to the Greeks; duty to country, duty to man as man. Rome, which had stimulated patriotism, first developed the consciousness of Humanity. "The fellowship of the human race," "the citizenship of the world," are phrases very prominent in his writings (*de Off.* i. 16, 17; *de Leg.* i. 22). Notable, too, is the influence of the "Roman Peace" in his glorifications of human industry, "by which a new nature had been brought into the natural world" (*de Nat. Deorum*, ii. 60).

His religion was that of a Theist, emancipated from legend and superstition. He believed, though without bigotry, in the immortality of the soul. His ethical system was practical and high-toned; as the third part of his work on *Duties* will show. He there discusses the question, whether a man, in dealing with another, may conceal important facts, as, if bringing corn to a famine-struck town, the fact that other corn-ships are on their way. He decides in favour of openness. What it is for the interests of others to know, you should not wish them to be ignorant of.

A collection of the best thoughts of Cicero, not yet made, is proposed by Comte for the Positivist Library. [J. H. B.]

Cicero. *Offices* and other works, Eng. trans. in Bohn's Library; *De Officiis*, *Ad Familiares*, *Letters to Atticus*, in Loeb Classics (others in preparation).

PLINY THE YOUNGER (*C. Plinius Cæcilius*), b. A.D. 61, d. abt. A.D. 116.

C. PLINIUS, the nephew of the philosophic naturalist of that name, was born at Como. He was educated at Rome in law and Greek philosophy: and in his twenty-first year went as military tribune to Syria, where he studied under the Stoic philosopher Euphrates. After two years he returned to Rome, where he attained the rank of Senator, and held several offices of State. He was an intimate friend of the historian Tacitus, who intrusted him with the correction of his works. These two men were spoken of as the duumvirate of literature. In his forty-second year he was appointed by Trajan proconsul of Bithynia. Much of the correspondence between the great emperor and himself has been preserved: amongst it are some letters relating to the sect of Christians, of whom Pliny speaks as having become so numerous in his province that many of the temples had been deserted. In replying to questions as to how he is to act, Trajan directs him not to institute inquisitorial search, nor to encourage informers, but only to punish those who openly repudiate the authority of the State in matters of ritual.

With the exception of a speech in praise of Trajan, we have nothing left of Pliny but his letters to the emperor, to Tacitus, to his wife, and to intimate friends. We see from these that he was a generous, tender-hearted, and highly cultivated man. Like the still larger correspondence of Cicero, these letters are of great value, because they enable us to live in familiar intercourse with these men and their friends who, sociologically speaking, are our true ancestors. In tone, temper, and standard of life the Roman citizen imbued with Greek culture is far nearer to us than the Hebrew of Palestine, or than the tribes of the German forests. [J. H. B.]

Pliny's *Letters* have been edited and annotated, and often translated (*e.g.* in Loeb Classics). *Pliny's Letters* (Anc. Classics for English Readers). Gibbon: *Decline and Fall*, ch. xvi. S. Dill: *Roman Society from Nero to Marcus Aurelius*.

EPICTETUS, b. abt. 40 A.D., d. abt 120 A.D.

EPICTETUS, a native of Hierapolis in Phrygia, lived for a great part of his life as a slave in Rome, his master being Epaphroditus, the freedman of Nero, and officer of his guard, who aided the emperor in his suicide. How different ancient slavery was from what we now know by that name is shown by the fact that Epaphroditus, a man of loose character, allowed the young Epictetus to attend the lectures of an eminent Stoic, Musonius Rufus. Wealthy citizens took a pride in having well-educated slaves about them. Ultimately Epictetus gained his freedom and taught in Rome till Domitian,

89 A.D., banished all philosophers from the city. He retired to Nicopolis in Epirus, where he opened a school and taught for the rest of his life. We owe the collection of his thoughts to his pupil, Arrian.

Epictetus was a Stoic, but of the Roman school. Zeno's principle —to live comformably to Nature—was too vague. But the solid social order which the Roman Commonwealth and Empire had established gave those words a new meaning. Above and beyond the narrow patriotism of the Greek State, or even of Greek culture, Roman conquest and law had enabled men to see that there was a citizenship of the world ; and that this was a part of the order of Nature to which men should conform, if they were to be truly free. This thought is very prominent in the teaching of Epictetus (see i. 9). "Take," he said, "the organs of the body. Looked at separately, it might be said, that the nature of the foot was to be clean ; but looked at as a bodily organ it has to tread on mud and thorns, and sometimes to be cut off for the sake of the body. So with man. Considered as detached from men, it is according to his nature to live to old age, and in wealth and health. But as a member of a social whole, for the sake of that whole he has to expose himself to sickness, toil, danger, and premature death " (ii. 5).

His theology was simple, noble, free from dogma. There was a guardian, a god, within us. "When you have shut the doors and made darkness within, remember that you are not alone, for God is within : and to this God you should swear allegiance as the soldier to Cæsar. What oath ? Never to be disobedient, never to complain, never to find fault with anything that He has given, never unwillingly to do or to suffer what is necessary " (i. 15 ; *see also* ii. 8). "You carry God within yourself, and do you not see that you pollute him by impure thoughts and foul deeds ? Thus only can men be free ; for without self-mastery and resignation to the supreme will, the highest and the lowest of men are alike " (iv. 1).

[J. H. B.]

Epictetus has been well translated by G. Long (Bohn's Library). Selections : *The Golden Sayings of Epictetus*, trans. by H. Crossley ; *The Teachings of Epictetus*, trans. by T. W. Rolleston. "Select Thoughts," in Positivist Library.

ARRIAN, b. abt. 80 A.D., d. abt. 160 A.D.

ARRIAN was a native of Nicomedia in Bithynia. In his youth he studied under Epictetus, who had then been banished from Rome, and was teaching at Nicopolis. Epictetus wrote nothing ; it is to Arrian that we owe the record of his conversations, and his manual of conduct. Arrian set himself to be to Epictetus what Xenophon had been to Socrates. Under Hadrian, Arrian acquired Roman citizenship, took the name of Flavius, and became governor of Cappadocia. He was a voluminous writer. The principal work

which has come down to us is his history of Alexander's campaign in Asia, which he compiled from contemporary memoirs written by Ptolemy and Aristobulus, who served under Alexander. He has also left works on sporting; and on the geography of India, of the Red Sea, and the Euxine. [J. H. B.]

Arrian's *Alexander* is in the Positivist Library.

TACITUS (*C. Cornelius*), b. abt. 56 A.D., d. abt. 120 A.D.

Caius Cornelius TACITUS spent his early manhood in the public service. Vespasian, who died 79, gave him a financial post in Northern Gaul. Under Titus he was quæstor, under Domitian, prætor. During the short reign of Nerva, who died in 98, he held the consulship. He married the daughter of Julius Agricola, governor of Britain under Domitian. Tacitus wrote a biography testifying to his deep respect for his father-in-law. The marriage would seem to have been a happy one. He was an intimate friend of the younger Pliny, as Pliny's letters show.

In his later life, Tacitus wrote the history of Rome from the death of Augustus to that of Domitian (*Annals* and *Histories* A.D. 14—A.D. 96). But only a portion of his works has come down to us. Besides his biography of Agricola, he wrote a description of the German tribes, contrasting their hardy virtues, purity of life, and respect for women with the corruption and feebleness in the Roman world of his time. Of Christianity he judged superficially and harshly. Mystical expectation of a future life seemed to him not the way to make good citizens in this.

As Thucydides analysed societies and social crises, so Tacitus penetrated to and revealed the springs of individual character. He is placed therefore in the week which commemorates ethical rather than political philosophy. His portraits are drawn with the fewest possible lines, but unmistakably. Take this of Galba for instance :—

"His character was moderate, free from vice, yet not virtuous. Not careless of fame, yet no braggart; not covetous; sparing of his own wealth, niggardly of the State's. Friends and dependants, if good, he left uncriticised; if evil, he was culpably blind. But his birth and the confusion of the times shielded him, so that apathy passed for wisdom. In youth he gained a soldier's reputation in Germany; as proconsul he ruled Africa with moderation, and afterwards North Spain not less well. In private life he seemed too great for privacy, and would have been universally considered competent for supreme power had he never held it." [J. H. B.]

Tacitus: *Works* translated by Church and Brodribb: also in Loeb Classics (proceeding). C. Merivale: *Romans under the Empire*, vii. ch. lxiv. *Pos. Pol.* iii. 335, 347. The Works of Tacitus are in the Positivist Library.

SOCRATES, b. 469 B.C., d. 399 B.C.

SOCRATES was the son of Sophroniscus, an Athenian sculptor of eminence. His parents were poor: his mother, Phœnaretê, practised as a midwife. He fought as an infantry soldier in many of the campaigns of the Peloponnesian wars, and distinguished himself by resolute courage, coolness in danger, and astonishing endurance of cold, heat, and hunger. Contemporary writers and sculptors have given us vivid impressions of his strong, thickset frame, and his plain, almost uncouth features. But when he spoke, men said, it was as though one of the old statues of Silenus had opened, and an image of some beautiful god had revealed itself within.

He followed his father's profession for some years, and a draped group of the Graces executed by him was preserved in the Acropolis for many centuries. But the greater part of his life was spent in philosophical conversation with his fellow-citizens, held at street corners, in the markets, the gymnastic grounds, and in all places of public resort. "His whole day was usually spent in this public manner. He talked with any one, young or old, rich or poor, who sought to address him, and in the hearing of all who chose to stand by; not only he neither asked nor received any rewards, but he made no distinction of persons, never withheld his conversation from any one, and talked upon the same general topics to all" (Grote, viii. 554). These conversations were on every subject affecting human life—justice, courage, temperance, and all the duties and relations of a citizen. His reputation grew, and people came from distant Grecian cities to hear him talk. In the story of his own life, which he told at the close of it, he says that one of his friends, Chærephon, put the question to the Oracle at Delphi, Whether any other man was wiser than Socrates? The answer given was that there was none wiser. Not being conscious of the possession of wisdom, Socrates was perplexed, till at last, after testing the supposed knowledge of many distinguished men, he interpreted the reply of the oracle as meaning that whereas other men thought they knew, he was one of the few conscious of their own ignorance. From this time he gave himself up more sedulously to the work of convincing men by cross-examination as to the vagueness of their knowledge on those things which it was most important for them to know, the things relating not to each man's special trade or profession, but to that which was common to all—the conduct of life.

Beginning with familiar conversation on any matter of passing interest, he led his companion to an attempt at defining the subject which he wished him to examine, as justice, courage, or temperance; he then asked questions to test his answer, and so brought him to see that his definition was imperfect, including some things that had nothing to do with the matter, excluding others that were essential; a second and third attempt was then made, to be followed

up in the like way. Aristotle remarks that Socrates was the first thinker who paid attention to accurate definitions. The process stimulated thought in many ways; and by his friend and disciple, Plato, it was applied to every subject of intellectual research. But Socrates discouraged speculation upon all subjects that had not a direct and practical bearing upon man's action and duty.

He believed himself to be under the guidance of an inner voice, which habitually restrained him from this or that course of action in which he would otherwise have engaged. It forbade him, for instance, to enter into the ordinary contests of political life. Again, when he was put upon his trial, the voice dissuaded him from preparing any elaborate defence. He spoke of this habitually in familiar conversation; and it lent colour afterwards to the accusations of his enemies that he was making innovations in the established religion. He was, nevertheless, scrupulously careful in conforming to all recognised rites and ceremonies, and in exhorting men to reverence the gods. He appears to have held no public office till his sixty-third year. In that year he took his place as one of the fifty senators taken by lot from the tribe Antiochis. It so happened that the senators of this tribe had the task of presiding over the popular assembly on a very important occasion. Certain generals, who had gained a great naval victory over the Spartans at Arginusæ, were accused of having neglected to rescue the drowning soldiers on their own side. Great popular excitement arose; a proposition was made to the assembly to set aside the regular formalities prescribing that each accused person should be separately tried before sworn jurors, and to leave it to a vote of the people there assembled whether these generals should be condemned to death. It was for the presiding senators to put this question to the vote; Socrates, undeterred by threats of sharing the fate of the accused, stood alone in refusing to be a party to the illegality, and the vote was carried against his solemn protest. Not less courageous was his conduct when the oligarchy known as the Thirty Tyrants had established themselves in Athens.

A life spent in convincing his fellow-citizens of the fallacies underlying their most cherished prejudices, and of the hollowness of many established reputations, could not fail to have made dangerous enemies. He had taken no part in popular politics, and some of those who most courted his society—for he turned no one away—had been unprincipled men, like Critias and Alcibiades, who had done the State much harm. It was probably from a mixture of personal and political resentment that an indictment was brought against him by Meletus and two others, in these terms: "Socrates is guilty of crime; first, for not worshipping the gods whom the city worships, but introducing new divinities of his own; secondly, for corrupting the youth. The penalty due is death."

The trial was conducted by a body of sworn jurors, 557 in number. The defence made by Socrates has been preserved by Plato. He

tells the story of his life from the beginning; explains his mission of leading all who came in contact with him to examine their own lives and principles of action. If the court acquits him, he will have no desire but to begin the same life again. To cease it would be to incur the guilt of irreligion: disobedience to the mandate of the gods. "As for the penalty of death, no man," he said, "knows what it is, yet men fear it as though they knew it to be the greatest of all evils. This is how men show their ignorance, pretending to know what they do not know. For my part, knowing nothing of Hades, I pretend to no such knowledge; but I do know well that disobedience to a better person than myself, whether God or man, is an evil and a shame; and I will not embrace certain evil, in order to escape from one which, for aught I know, may be a good."

He was pronounced guilty by a majority of six votes. It was the custom that a second vote should be taken as to the penalty to be inflicted. And the accused person had the right of proposing some minor penalty as an alternative. When Socrates was asked to do this, he said: "I have no private fortune, though, perhaps, my friends, if I appealed to them, could help me. But if I am asked what my life and conduct deserve, I reply that maintenance at the public expense, as a benefactor to the State, is the right recompence for one who has given up his own fortune, and embraced voluntary poverty, for the sake of the improvement of his fellow-citizens." As might be expected, the penalty of death was decreed, and was carried out a few weeks afterwards, in the way customary at Athens, by poison.

The life of Socrates is known to us from the writings of his two disciples, the soldier Xenophon and the philosopher Plato. Of the two, Xenophon is the more accurate. Plato puts his own thoughts into the mouth of Socrates, working them out by his master's method of question and answer. Xenophon's memoir is a simple statement of what he remembers Socrates to have said. Both authors have been translated into English. [J. H. B.]

Grote: *Hist. of Greece*, part ii. ch. 68; *Plato*, i. ch. 7; iii. ch. 38, 39. Xenophon: *Memoirs*, edited by J. Greenwood, 1823; and translated by Sarah Fielding, 3rd edn., 1788. *The Trial and Death of Socrates*—Plato's *Euthyphron*, *Apology*, *Crito* and *Phaedo*, trans. and ed by F. S. Church; the same Dialogues with Phaedrus in Loeb Classics. *Pos. Pol.* iii. 288; and *Phil. Pos.* v. 53, p. 156. See PLATO.

XENOCRATES, b. abt. 396 B.C., d. abt. 314 B.C.

XENOCRATES of Chalcedon attached himself to Plato, whom he accompanied in his journey to Dionysius, in Sicily. The greater part of his life was spent in the Academy, over which he presided after the death of Plato's pupil, Speusippus, for twenty-five years—B.C. 339-314. He was noted for gravity of demeanour, for temperance, veracity, and integrity, and is frequently praised and cited by Cicero. When sent as a member of the Athenian embassy to Philip of Macedon, he stood alone in inflexible refusal to receive

bribe or favour; and he maintained the same character in his embassy to Antipater. He was a voluminous writer, but nothing except the catalogue of his works has come down to us. He died at the age of 82. His position in philosophy is that of an immediate successor to Plato, who developed the Platonic system, especially in its tendency to Monotheism as the basis of a purer and stronger moral life. [J. H. B.]

Diogenes Laertius, iv. Cicero: *de Off.* i. 30, "severissimum philosophorum"; *Academ.* i. 9. Grote: *Hist. of Greece*, xii. 435.

PHILO, b. abt. 20 B.C., d. abt. 60 A.D.

PHILO was an Alexandrian Jew, probably a Pharisee, and connected with a priestly family. Of his life little is known but that he was sent as chief of a deputation from the Jews of Alexandria to the Emperor Caligula, to defend themselves against Apion, who had accused them of refusing to pay due honours to Cæsar. Beyond the fact that he paid a second visit to Rome in the time of Claudius, nothing further is known of his life.

But his works are of great interest. They show that there was a large and important school of thinkers in Alexandria, who made it their business to reconcile Judaism with Greek philosophy, especially with the philosophy of Plato. They did this by the unlimited use of allegory in their interpretation of the Scriptures. Thus Philo, commenting on the text (*Gen.* ii. 1), "The heavens and the earth were finished, and all the host of them," explains that the heavens meant Reason, and the earth Sensation. As for the world being created in six days, this could not be literal, since time had no existence till creation was accomplished. But six was a perfect number, and seven was still more perfect. The whole Biblical history is interpreted in like manner. The four rivers of Paradise are the four virtues. Adam is, again, Reason; Eve, Sense and Passion; and so on.

But the most important of the conceptions of this school is their theory of the Logos; translated usually in the Christian Scriptures as the Word, but having the double meaning of Word and Reason, as in the similar instance of the Italian *ragionare*. Next to the Supreme God, in Philo's philosophy, came the Reason, Thought, or Word. Of this he speaks as the first-begotten Son of God; as the Creator and Governor of the world; as the second God; as God's High priest, as existing from all eternity. In other places he speaks of the Logos as the Idea of Ideas, from which issued first the Platonic world of invisible forms, and ultimately the visible universe. The momentous influence of this school of thought on Christian theology is obvious. [J. H. B.]

Philo: *Works*, Eng. trans. 4 vols. (Bohn's Theolog. Lib.). F. C. Conybeare: *Philo: About the Contemplative Life*. F. Cumont: *Philo, de æternitate Mundi*. Neander: *Church Hist.* i., Introduction, (Bohn's Standard Lib.). Kuenen: *Religion of Israel*, iii. ch. ii.; Eng. trans., p. 193-200. Lewes: *Hist. Phil.* i. Epoch 9.

ST. JOHN THE EVANGELIST, first half of 2nd Century A.D.

By this title is here indicated the author of the Fourth Gospel, which, more than any part of the New Testament, except some of the epistles attributed to St. Paul, has moulded the faith of Christendom. The belief commonly accepted has been that this Gospel was written by John, the son of Zebedee, who is also regarded as the author of the *Revelation*. Against this view modern criticism has alleged reasons which seem decisive. First, the Greek style of the Apocalypse differs so widely from that of the Gospel, that the two books could hardly have been written by the same hand. Secondly, the contents are even more divergent. The Apocalypse is the most Jewish, the Gospel the least, of all the New Testament writings.

The Apocalypse would seem to have been written in the year 68, before the death of Galba, and when there was a wide-spread belief that Nero would reappear (ch. xvii. 10, 11). Jerusalem was still unbesieged ; and the belief in the Jews as the central nation of the world, round whom the rest would rally, is ardently expressed throughout the book. In the Gospel, on the contrary, every trace of Judaism is lost. The struggle between the Judaic Christians of Jerusalem and the universalism of St. Paul seems as a thing long past. Neither in Jerusalem nor in Mount Gerizim is there any privilege of worship. Of the numerous differences in fact between this gospel and the other three, many indicate the same universalising tendency : not least, the remarkable difference as to whether Jesus kept, or did not keep, the Passover on the night before his crucifixion. According to the Fourth Gospel, in which the crucifixion is placed a day earlier than in the other narratives, he did not ; for Jesus was himself the fulfilment of that of which the Passover was a symbol.

Finally, there is no sufficient evidence that this Gospel was recognised in the Christian Church till the middle or close of the second century. It bears evidence of being written by a Christian of Alexandria, deeply penetrated with the Christian spirit as understood by Paul and his disciples, but to whom also the philosophy of Plato and Philo was familiar. The first sentence of the book might have been written by Philo himself. [J. H. B.]

Those desirous of entering into the controversy as to this book may consult the works of Baur and Renan, who controvert — of Lightfoot and Westcott, who advocate — the traditional view.

ST. JUSTIN, d. between 150 and 166 A.D.

JUSTIN was a native of Flavia Neapolis, a Greek town built on the site of the old Sichem in Samaria. He describes, in one of his dialogues, his studies of various schools of philosophy, and his final

adoption of Platonism. An old man, whom he met one day upon the sea-shore, urged him to study the Christian Scriptures. The steadfast courage with which the Christians withstood persecution had already predisposed him in their favour. He accepted their doctrine, and devoted the rest of his life to propagating it, first in Egypt and Asia, subsequently in Rome ; still retaining the garb of a philosopher, and endeavouring to support the new doctrine on philosophic grounds. His writings, some of which are in the form of Pleas, or Apologies, addressed to the Roman Emperor, are full of references to Plato and his predecessors. He had been strongly attracted, he says, by Plato's conception of incorporeal existences, or Ideas, and by the scheme of mental discipline that would render man capable of apprehending these. In Plato he found, obscurely stated or hinted, not merely the truths as to the creation of the world by God, but also the mysteries of the Cross and of the Trinity ; for Plato and his master Socrates had drawn their knowledge of these things from the Mosaic Scriptures. They thus had a share in the Divine Logos, the Word, or Reason, of God. Their teaching was not alien to that of Christ. (See *Apologies*, i. and ii.) Justin was commonly called the "Martyr," and the "Philosopher." He is the first of the Apologists whose writings have reached us. He was beheaded in Rome ; under what circumstances, and whether in the reign of Antoninus Pius or of Marcus Aurelius, is uncertain.

[J. H. B.]

Justin Martyr : *Works*, translated and edited by Dr. Pusey, 1861. Neander : *Church Hist.* transl. ii. 412-426. Fleury : *Eccles. Hist.* bk. iii.

ST. IRENÆUS, b. abt. 110 A.D., d. abt. 190 A.D.

Of the early life of IRENÆUS little is known. He was a native of Asia Minor ; and in his youth was brought into intimate contact with Polycarp, who collected and transmitted to him many sayings of St. John and the other disciples of Christ. In the year 177 A.D. he succeeded Pothinus as Bishop of Lyons.

His great work is a treatise against the heresies of his time. He was well placed for this task. He was a Greek, thoroughly versed in the philosophical controversies of his time. And he held high office in the Western Church, of which Rome was regarded with increasing unanimity as the centre ; a Church which aimed at building up a social system that should govern the souls of men, rather than at the vain attempt to satisfy intellectual curiosity by a metaphysical structure. It needed a wise, practical, and forbearing spirit to distinguish the Catholic doctrine—formed of inscrutable mysteries which surrounded its teachers with a halo of reverence, and therefore helped them forward in their work—from the incoherent novelties that the speculators of Alexandria were pouring out in mischievous profusion from the inexhaustible store of Plato's metaphysics.

Irenæus did his work well, and thus contributed to the formation of the orthodox Catholic doctrine; a doctrine whereof the whole value consisted in forming a basis on which the practical work of the Church could proceed. It is said that Irenæus suffered martyrdom; but there is no sufficient evidence of this. [J. H. B.]

Irenæus: *Works*, transl.; 5 books against Heresies, transl. by Rev. J. Keble, 1872. Fleury: *Eccles. Hist.* bk. iv. Neander: *Church Hist.* transl. ii. 434-440.

ST. CLEMENT OF ALEXANDRIA, b. abt 150 A.D., d. 220 A.D.

Titus Flavius CLEMENS, a native of Athens, passed the earlier part of his life as a student and teacher of Greek philosophy. By some he was called a Stoic, by others a Platonist. He himself says that he had many teachers, both in Greece, in South Italy, and in Syria (*Strom.* i. 1); and finally had found one in Alexandria who satisfied him more fully than the rest. This was Pantænus, formerly of the Stoic school, but converted to Christianity, and at that time head of the Christian school in Alexandria. Clement became a Christian, and ultimately succeeded Pantænus. He had many celebrated pupils, amongst them Origen. He was driven from Alexandria in the time of Severus, but seems to have returned, and to have died there.

Clement's conversion did not divert him from philosophical studies. On the contrary, he made it his object to prove that Greek philosophy, as taught by the great masters, and above all by Plato, was the best preparation for Christian doctrine. Philosophy was given to the Greeks, as the Law was given to the Jews, and, though superseded by the Gospel, the study of it remained none the less important (*Strom.* vi. 17, i. 9, 17). Clement, nevertheless, spends much effort in proving that the Greeks were not the original source of wisdom that was commonly supposed. He quotes with approval the remark of the Egyptian priest in Plato: "Greeks, Greeks, you are always children!" Cadmus brought them the alphabet from Phœnicia. From Phœnicia, too, according to some authorities, came Thales. Pythagoras was, perhaps, of Etruscan origin. Antisthenes was a Phrygian; Orpheus, a Thracian; Anacharsis, a Scythian; and in any case the oldest of these philosophers was far less ancient than Moses. He came long before the Trojan war, before the sailing of the Argo, before Bacchus, Hercules, or Prometheus. It is clear, he thinks, that Plato borrowed much from the legislation of Moses; so much so, that Numanius, a Pythagorean philosopher, asked, "What is Plato but Moses talking Attic Greek?" Plato (*Strom.* ii. 22) places the highest happiness in striving with submissive humility to become like to God. What is this but the Christian doctrine? Similarly, Clement insists on the connection between the Platonic Idea and the Christian Logos.

The principal work of Clement, his *Stromateis* (Tapestry or Patchwork), is filled with quotations from Greek poets or philosophers,

many of them otherwise unknown to us, which appeared to him likely to lead men imbued with Hellenic culture to the Christian system. The teaching and discipline of the Church are presented by him with quiet moderation, contrasting strongly with the fierce fervour of his contemporary, Tertullian. [J. H. B.]

Clement: *Works*, transl. 1867; and in Loeb Classics, 1920. Fleury: *Eccles. Hist.* bk. iv. Neander: *Church Hist.* transl. ii. 453.

ORIGEN, b. 184 A.D., d. 253 A.D.

ORIGENES Adamantius was a native of Alexandria. He was brought up with great care by his father, Leonides, who was a Christian, and instructed in Greek literature and philosophy, as well as in the doctrines of the Church. Clement at that time presided over the Christian school, and Origen was his pupil. His father perished in an outbreak against the Christians, which occurred at the beginning of the century; and the family were reduced to great poverty.

Clement retreating at this time from Alexandria, Origen, now in his 19th year, took his place as master of the Christian school; his lectures were numerously attended. This alone is a proof that the persecution which still continued was not general or extremely severe; indeed, Origen, speaking of this and other outbreaks, expressly says that the number of those who suffered was not great. He himself, though frequently visiting the Christian prisoners, was not singled out for attack. Nor can this be attributed to weakness: for he practised extreme austerities, even to the point of literal observance of the advice to practise self-mutilation for the Gospel's sake.

With the exception of a short journey to Rome, he remained at Alexandria till his forty-fifth year, teaching sacred and profane science and literature, and studying Hebrew, with a view of producing a critical edition of the Scriptures. Owing to dissensions with Demetrius, the bishop of Alexandria, he left that city for Palestine, and finally settled at Cæsarea, where, notwithstanding the protests of Demetrius, he was ordained a priest by the Bishop of Jerusalem. Here he pursued his studies, and gathered round him many illustrious disciples. Gregory Thaumaturge, one of them, has described the course of scientific and philosophic teaching which he went through before studying Christian theology. Origen had friendly interviews with Mamæa, the mother of Alexander Severus, and with the Emperor Philip and his wife Severa. Under Decius he was imprisoned, but was ultimately released. He is said to have died at Tyre in 253 A.D.

His principal works are his *Commentaries on Scripture*, his *Principles of Christian Doctrine*, and his refutation of an attack on Christianity by Celsus, an Epicurean philosopher. The *Principles*, known to us mainly by a Latin translation, which avowedly left out some

heterodox passages, are deeply penetrated with Platonism. The habit of taking words for things made it easy to pass from Wisdom or Spirit of God to belief in the Persons of the Trinity. Eternity of punishment, implying the ultimate triumph of evil, Origen could not accept. Sin brought its own punishment; and purgation through a long course of suffering would be the final issue. Not merely sinful men but fallen angels would ultimately regain the state of purity and blessedness. "For God governs souls not with reference to the fifty years of the present life, but with reference to an illimitable age" (bk. iii. ch. 1).

Notable also is Origen's protest against literal interpretations of the Bible. It is not needful, he says, to suppose that the world was literally created in six days, or that Jesus was actually taken by the Devil to the summit of a mountain, and the kingdoms of the world shown to him. These things are to be interpreted spiritually (bk. iv. ch. 2). [J. H. B.]

Origen; *Writings*, transl. 1869. Fleury: *Eccles. Hist.* bk. v. Neander: *Ch. Hist.* transl. iii. 488-500.

TERTULLIAN, b. ab. 150 A.D., d. abt. 230 A.D.

Q. Septimius Florens TERTULLIANUS was the son of a centurion stationed at Carthage. He received a good literary education, and practised for some years as an advocate. Being converted to Christianity, he was ordained a priest. He wrote numerous works on the rites and discipline of the Church, and in defence of Christianity. Of these the most important is his *Plea for Christians against Heathens*, written 198 A.D. In this he refutes the slanderous attacks made against Christian morals, analogous to the calumnious charges made frequently in recent times against Jews; and he appeals to Roman law and justice for the same fair-play that was shown to other accused persons. We learn from this work how widely Christianity was diffused throughout the Roman Empire at the end of the second century. Shortly afterwards he joined the Montanists, a sect of fanatic ascetics who denounced all profane learning, condemned military service, regarded second marriages as adultery, denied the power of the Church to give absolution for sins committed after baptism, and generally applied Christian doctrines in ways utterly at variance with the wise moderating spirit of the Roman Church. The precise time at which he joined this sect appears doubtful. Many of his works, which are strongly marked with the Montanist (*i.e.* Puritanical) tendency, are vigorous denunciations of heresy, and in support of Church discipline; as *e.g.* his treatise *de Prescriptione Hereticorum*, and that against Praxeas in defence of the Trinity. He appears finally to have separated from the Montanists, and to have formed a sect apart, remnants of which were found by Augustine in the African Church more than a century afterwards.

Tertullian's writings, which contrast strongly with those of the Alexandrian school, illustrate the practical aspect of the Church as an organisation of life. They are full of wide and varied learning ; but intellectual processes are rigorously subordinated to the tradition of the Church and to the edification of Christian life.

Of the death of Tertullian nothing is known ; but he lived to an advanced age. [J. H. B.]

Tertullian : *Writings*, transl. Edinb. 1869. Fleury : *Eccles. Hist.* bk. iv. Neander : *Ch. Hist.* transl. ii. 346-442.

PLATO, b. 427 B.C., d. 347 B.C.

The philosopher known as PLATO was born in the island of Ægina, in May 427 B.C., of an ancient and noble family. His father was Ariston, his mother Perictionê : he himself was called Aristocles : the name Plato, indicating perhaps his robust frame, or breadth of brow, was added afterwards.

His friendship with Socrates began when he was twenty years old, and remained unbroken till the death of Socrates in 399. Taking the aristocratic side in politics, and being connected with some of the men who established an oligarchy in 403, he formed hopes of wise government which were speedily dissipated. With the noble resistance of Socrates to the tyranny of the Thirty Tyrants he cordially sympathised. After the restoration of democracy, and the martyrdom of Socrates, Plato retired to Megara, and lived for some time with Eucleides, a philosopher of that city. He subsequently travelled, like Pythagoras, in Egypt, and also associated with the Pythagorean schools still flourishing in Tarentum, Locri, and other cities of South Italy and Sicily. In Sicily he made acquaintance with Dion, over whom he gained strong influence. At Dion's invitation he visited the elder Dionysius at Syracuse ; his free speech offended this tyrant, who caused him to be sold as a slave on his voyage homeward to Ægina. He was speedily ransomed and conveyed to Athens, where in 386 B.C. he opened a school of philosophy in a garden near the shrine of the hero Hekadêmus, situated about a mile from the north gate of the city. This was the first of several schools of philosophical teaching founded in Athens, which continued in activity for eight centuries, until finally suppressed by the Emperor Justinian in 529 A.D.

Plato had for his pupils many of the celebrities of the century : the orators Demosthenes and Hyperides ; the philosophers Speusippus, Xenocrates, and Aristotle ; the great geometer and astronomer Eudoxus. His life of teaching, continued till his death in 347, was varied only by two journeys to Syracuse ; the first, in 367, undertaken at the instance of Dion, with the vain hope of inducing the second Dionysius to model his government on philosophical principles ; and the second, five years afterwards, to procure the

restoration of Dion, whom Dionysius had banished. In 359, Dion succeeded, partly with help afforded by Plato's pupils, in making himself master of Syracuse, but was shortly afterwards assassinated. The failure of his hopes to witness a government founded on philosophy threw a gloom over Plato's last years. He appears to have been profoundly respected by the Hellenic world. The rival school which his pupil Aristotle opened, in the temple of the Lycean Apollo, does not appear to have disturbed the personal friendship of these two great thinkers.

Plato's works are written in the form of dialogue, the principal speaker being, in almost every case, Socrates. The practice of Socrates to lead people of every class into familiar talk, and to encourage them to sift their own thoughts and beliefs on the conduct of life, made him a *dramatis persona* into whose mouth opinions and arguments on every possible subject could be placed tentatively, without committing the author to any positive conclusion. It is therefore often very difficult, and not seldom impossible, to state with certainty what Plato thought; and much of what he wrote may be spoken of as dreams in dialogue, rather than philosophical expositions. The works that give the fullest account of his philosophical and social system are the *Republic*, the *Timæus*, and the *Laws*. Of these a brief notice is now given.

The *Republic*, starting from the attempt to prove that righteousness is preferable to unrighteousness, whatever pains and calamities may go with the first, or pleasure with the second, depicts an ideal polity, in which the governing class, corresponding to the reasoning faculty in man, is trained and educated for the work in the most perfect way. For this class the institutions of private property and the family are to be suppressed. The children are to be children of the State. Both sexes are to receive the same gymnastic and intellectual training. In the education of their intellect the great object is to set them free from the tyranny of sense and prepare them for the perception of Ideas. This word meant with Plato something widely different from the conception with which Locke and Hume have made us familiar.

Every general term, as horse, man, table, denoting a group of objects, had in Plato's philosophy a real existence corresponding to it, of which any particular horse, man, or table was but an imperfect transitory copy. Men when uneducated were like dwellers in a cave chained with their backs to its mouth. A fire behind them threw shadows of passing objects on the ground before them; and these shadows they take for the realities of things. A prisoner, set free from the cave and taken to the daylight would be dazzled and blinded, and it would be long before he got to know about real objects, and about the sun which gave them light, and brought the changes of the seasons, and growth and life in the world. If such a man went down again into the cave he would be again blinded; none of his fellow-prisoners would believe his visions, and he would

be less able than they to discourse eloquently about shadows. Such is the contrast between the trained mind of the philosopher cognisant of ideas and the untrained mind of the multitude. Nevertheless the great object of all wise polity is that philosophers should be kings.

The ideas of Plato recall the numbers of Pythagoras, but wander much further from positive philosophy than they. Numbers bear some relation to laws of Nature. Plato's Ideas confound an institution of humanity—the words in which the accumulating reason of mankind transmits its collective tradition—with the things of which they were the signs. But Plato's conception lent itself readily to the requirements of the Catholic creed, in which the word or Reason was upheld as the most sacred and eternal of Beings.

In the *Timœus* a description is given of the genesis of the universe and of the human body. Plato here introduces his conception of the Demiurgus, or constructive workman, who, by impressing the eternal Forms or Ideas upon pre-existent formless matter, produced the second order of gods, the stars and planets, by whom afterwards man with his mixed nature, compounded of earthly and divine, was created. It was this treatise that convinced the Alexandrine Jews and Christians that Plato had borrowed his leading conceptions from Moses.

In the *Laws*, Plato portrays a Commonwealth, not purely ideal as in the *Republic*, but such as might be actually realised in the Grecian world. He supposes it to be a colony founded in the island of Crete, and composed of settlers representing all varieties of the Hellenic race. He enters into minute details of legislation and of education ; from which we gather that his guiding principle was to secure stability even at the risk of obscurantism and tyranny. No great public reform, he says, can be accomplished without large interference with public and private life. Private property is to be allowed, but is to be fenced in with restrictions that few socialist schemes have exceeded. The number of landholders is to be rigidly fixed : marriage is to be compulsory, the number of children strictly limited ; and one son only is to succeed to the landed property of the father. But, above all, everything connected with education and religion is to be sedulously guarded from change. As in Egypt, so in Greece, all songs, dances, and festive ceremonies must first receive the approval of official censors, who are to be men above the age of fifty, and when so approved must never afterwards be changed. All the existing dramatic literature of Greece must be freely and systematically expurgated. Much reading of any kind is to be discouraged. Arithmetic, geometry, and astronomy are to be taught, not for their practical utility, but to inspire true thoughts as to the universe and the great divinities, the sun, moon, and planets. The belief that the planets moved irregularly should be regarded as blasphemous. Bodily exercises, under the same stringent regulations, are to be systematically encouraged in both sexes. and their

efficacy in restraining sexual impulse is strongly insisted on. In his criminal legislation, heresy—that is, erroneous beliefs about the gods—occupies a very prominent place. Even when the life has been morally blameless, the punishment is five years' imprisonment; persistence in unbelief being punishable with death. Heresy, combined with vicious conduct, sorcery or charlatanry, is punishable as the worst of crimes. It is certain that the legislation here proposed by Plato would have condemned Socrates many times over.

The influence of Plato's thoughts has been great and prolonged; but it is largely due to the dramatic skill and poetic style in which they were delivered. To the building up of human life on the basis of science they contributed nothing. But they inspired ardour for social regeneration; and when transplanted into the soil of Alexandria they formed one of the channels through which Jewish and Christian thought penetrated into the Western world.

[J. H. B.]

Plato: *Dialogues*, transl. by Jowett, 5 vols. R. L. Nettleship: *Lectures on the Republic*; see also essay in *Hellenica*. Grote: *Plato*, 3 vols. Lewes: *Hist. Phil.* i. Epoch 6. Laffitte: *Grands Types*, ii. 256-278. *Phil. Pos.* v. 53, 55, p. 388. *Pos. Pol.* iii. 247, 289.

ANCIENT SCIENCE.

THE abstract sciences, in contrast with the mass of concrete knowledge from which they gradually arose, have been developed, in accordance with Comte's law of Classification, in the order of the increasing complexity of the phenomena with which they deal. By the Greeks, as by other nations, experiences were registered of all facts that touched their life nearly. They took account of human passion, of political conflict, of the structure and diseases of the human body, of all facts in the world round them that seemed to bear on agriculture, navigation, and the other arts of life. But their peculiar intellectual distinction is to have entered, where none had gone before them, into the domain of abstract science. Others had measured fields, and calculated, though imperfectly, the stone needed for building a temple. It was left for Thales, and those who followed him, to abstract from these concrete objects the lines and angles which defined them, and to arrive at the laws—that is to say, the general facts—of space and number.

Beyond these simplest laws and their application to the heavenly bodies they could not go. The laws of motion, of heat, of light, of sound, of chemical combination, of vital action, of political growth, of moral conduct, were left for later centuries to discover. And though in some of these departments wonderful anticipations had flashed before the mighty genius of Aristotle, yet they were but imperfect glimpses of the truth, needing the apparatus of a metaphysical system to render them coherent.

Of all sciences, mathematics is that which most emphatically asserts the superiority of Humanity to Man. It presents a gradual and continuous growth in which great men have done great things, on the condition of beginning by complete submission to the community of great discoverers who had gone before them. They carried on their work, not with the purpose of destroying what other men had done, but in order to build on their foundations; so that the vast structure of mathematical science, as we now have it, is as continuous and complete as some ancient cathedral, the work of centuries. The plans of the cathedral of Cologne were drawn centuries ago, and part of the structure reared. Then for long generations it was left untouched, until in our own time the work has been resumed and completed. So it was that, after the Greeks had laboured for eight centuries at mathematical science, their work was laid

aside in Europe for a thousand years, while barbarian invasions and the building up of the Christian Church absorbed the thoughts of men. Then, when the Church began to lose its political influence, the Arabs, who had kept alive and enriched the tradition of Greek science, handed it over to the Western nations for yet further enlargement.

It is common to present Newton to popular audiences as the man who discovered the laws of the solar system. Little is said of the dependence of his discovery on the principles of motion due to Galileo, and on the three laws of Kepler. Gravitation, a conception familiar to his time, would have remained a barren conjecture but for the mathematical calculus which made it possible to write the *Principia*. But the calculus of Leibnitz and of Newton rested on the algebraic researches of Wallis, Fermat, and others; these again following from the geometry of Descartes, published half a century before Newton's great work. Descartes, perhaps the most original of all great mathematicians, began his work with the discussion of a problem in geometrical analysis which Pappus of Alexandria, thirteen hundred years before, had proposed, but had not been able entirely to solve. In the same way the astronomy of Copernicus and Kepler is directly continuous with that of Ptolemy and Hipparchus.

The earlier mathematicians of Greece were also philosophers. Thales, the founder of abstract geometry, occupied himself with speculations as to the constitution of the universe and with principles of human conduct. With Pythagoras and his followers, the association of geometry with philosophy was far more intimate. For them numbers were the principles of all things. They studied the five regular solids with the hope that light would be thrown on the ultimate constitution of matter. In framing their scheme for the organisation of human life they were animated by the hope of reducing it to the same harmony that they saw to govern the motions of the heavens. They did not foresee how long a course of centuries was needed before their dream could be realised. Patient research, proceeding slowly from the simpler to the more complex facts of the world and of life, must be carried on from generation to generation before the existence of natural law in social and moral phenomena could be detected. And meantime students of science must be sustained by ardour for truth, apart from application of it to purposes of immediate utility.

The Utopia of Pythagoras was shattered, and his community dispersed. But the intellectual impulse that had been stirred by his moral and social fervour remained in full activity. In direct connection with the school of geometry which he founded stands a long series of successors. Philolaus and Archytas were his philosophical disciples. Archytas taught geometry to Eudoxus, from whom Archimedes received the method of Exhaustions. Eudoxus taught Menaechmus, the discoverer of conic sections, the direct predecessor, therefore, of Apollonius of Perga.

By this time not merely has Science detached itself from Philosophy but the sciences of geometry and astronomy were studied separately ; Eudoxus being, as Comte remarks (*Pos. Pol.* iii. 265), the last who cultivated both. The establishment under the Ptolemies of the university of Alexandria gave facilities for such special researches ; and henceforth for six centuries the sciences of geometry and astronomy, together with the art of medicine and such biological studies as were directly connected with it, were prosecuted each by their own followers. The fierce controversies attending the development of Catholic doctrine were not favourable to scientific research ; and in the third and fourth centuries A.D. the names of Pappus and Diophantus stand out in solitary greatness above a low level of mediocrity. Then follow the Vandal invasion of the fifth century, the suppression of the schools of Athens in the sixth, and in the seventh the destructive fervour of the Mohammedan conquest of Egypt. Toward the close of the eighth century the Caliphs of Bagdad rekindle the extinguished torch of science, and four centuries later hand it on to the West.

The names in the weeks belonging to the month of Archimedes are distributed as follows :—

The first week is devoted to the students of Medicine, and of such preliminary biological science as branched out from it. Hippocrates presides, and the names of the principal anatomists of Alexandria and of Arabian writers on medicine are included.

In the second week the history of Mathematics is represented from Euclid to Diophantus. Apollonius of Perga is the principal name.

The third week records the astronomers of Greece and Arabia from the time when Astronomy, ceasing to be a mere record of observations, became a scientific doctrine capable of precise forecast of future events. The post of honour is assigned to Hipparchus.

In the fourth week are commemorated the names of men, principally Roman, who, without achieving scientific discoveries, applied science to the arts of life, and compiled materials for future thinkers. The elder Pliny is the principal type of such men, among whom are included writers on agriculture, architecture, and geography.

[J. H. B.]

ARCHIMEDES, b. 287 B.C., d. 212 B.C.

ARCHIMEDES was a native of Syracuse, one of the greatest cities of the West Grecian world. His letters to Dositheus of Alexandria show him to have been in constant communication with the students of geometry in that city. Plutarch, in his life of Marcellus, speaks of his intimate friendship with King Hiero of Syracuse, who induced him to apply his mechanical principles to the construction of military engines; though the time thus withdrawn from his theoretical researches was most unwillingly given.

During the second Punic War Hiero had been in close alliance with Rome. But after his death, Hippocrates, an ambitious general, enlisted the city on the side of Carthage, and a Roman force, under the command of Marcellus, besieged it by sea and land. The fleet, equipped with the usual engines of war, especially the *sambuca*, a vast scaling-ladder erected on a platform fixed on the decks of two ships lashed together broadside, found themselves in face of a strange foe. Balistæ of surpassing power suddenly rose above the battlements, and hurled vast masses of stone or lead against the approaching ships, then were as suddenly withdrawn. When the ships reached the walls, huge beams were let fall, end downward, on the decks; or iron hooks, attached to a chain, grappling the prows, lifted the ships endwise from the water, then let them go and sank them. On the land side the besiegers were met in the same way. These engines were the work of Archimedes. To prosecute the siege actively was impossible. The city was reduced by famine, and at last stormed. Archimedes, meanwhile, having done as a citizen all that in him lay, had returned to his diagrams; and he was still bending over the sand on which these were traced when a soldier slew him. Marcellus erected a monument to his memory, which was discovered more than a hundred years afterwards by Cicero. It bore the image of a cylinder circumscribing a sphere, with a verse indicating, what Archimedes had held to be his greatest achievement, the measurement and mutual proportion of these two bodies. Dramatic, surely, was the contrast offered by the siege of Syracuse between the scientific intellect of Greece and the disciplined force of Rome; and not less remarkable is the admiration of the conqueror for the conquered, which, in a few generations, would weld the Greco-Roman world into one.

Geometry, when Archimedes began his career, had made more progress than is shown by the thirteen books of Euclid's *Elements*. For a century at least thinkers had been exercised by the Delian problem, suggested by an oracular command to build a new altar in Apollo's shrine at Delos similar in shape to the old altar, but double the size. The duplication of the cube was not possible by Euclid's *Elements*. Involving as it did the finding of two mean

proportionals between two given magnitudes, it led to the study of various curved lines resulting from mechanical movements more complicated than those of the compasses. Euclid himself investigated Conic Sections. Dinostratus discovered the quadratrix resulting from the intersection of a rotating line with another moving parallel to itself. An immense field of research was thus opened. Archimedes made an elaborate study of the spiral formed by a straight line rotating with uniform velocity round one of its extremities, while, at the same time, a point in the line moved forward from the fixed point with similar velocity. This curve, usually handled by the transcendental calculus of modern mathematics, was attacked by Archimedes with extraordinary skill and success. Tangents were drawn to any point in the curve, and its quadrature was found.

Great thinkers, while heedless of immediate utility, have always been guided by a secret purpose of increasing man's power to control his destiny: they have served Humanity, though not always their own generation. In dealing with curved figures, Archimedes fixed always on the most important and difficult of the many problems connected with them—their comparison with spaces bounded by straight lines—in other words, their quadrature. Of all curved lines and surfaces, none could be so important as the circle and the sphere; not because of the imaginary perfection attributed to them by Plato, but because the heavenly bodies moved in circles, and the earth's figure was apparently a sphere fixed within the vaster sphere of the heavens. To measure the area of a circle, the surface, and the solid content of a sphere, were obviously problems of vast moment.

Inserting a polygon in a circle, it was clear that the polygon was the sum of the triangles of which the side was the base, and the perpendicular from the centre the altitude. Increasing the number of sides indefinitely, the sum of the sides became equivalent to the circumference of the circle. Thus the area of the circle was equal to that of a triangle of which the circumference was the base and the radius the altitude.

The next step was to compare the radius, or the diameter, with the circumference. Artificers had always known the proportion to be less than one to three; and, since Pythagoras, it had been suspected to belong to the class of incommensurable quantities. Describing round a circle a succession of equilateral figures, of six, twenty-four, forty-eight, and, finally, of ninety-six sides, he found by an extremely laborious calculation that the circumference was three times the diameter plus a quantity which was less than a seventh but more than ten seventy-one^{ths}. The calculation has been pursued to a hundred decimal figures, but remains, now as then, a striking instance of the cases in which our highest efforts approximate to the truth without reaching it.

There remained the problem of measuring the surface of the sphere. If a polygon, described round a circle, were made to rotate round

the diameter, the resulting solid would consist of a series of truncated cones. There was no difficulty about measuring the surface of any of these. It was equal to the rectangle of which one side was that of the truncated cone, and the other the length of the circle drawn midway between the greater and lesser base and parallel to them. When the sides of the polygon were numerous, ultimately merging into a circle, it became impossible to find the sum of these infinitely small areas. But by a happy transformation, substituting for the cone-side its projection on the diameter of the solid, the integration was effected. The surface of the sphere was found equal to the length of the great circle multiplied by its diameter: in other words, to four great circles.

The next problem was to effect the cubature of the sphere; *i.e.* to determine its solid content. By regarding it as an assemblage of pyramids with their summits at the centre and bases at the surface, the sum of these bases, when very numerous, became equivalent to the sphere. The content of the sphere was therefore the area of four great circles multiplied by one-third of the radius; in other words, of one great circle multiplied by two-thirds of the diameter. And as the cylinder of equal height and diameter was equal to the great circle multiplied by the diameter, it followed that the sphere was equal of two-thirds of the circumscribing cylinder. Henceforth the simple measurement of the diameter of one of the heavenly bodies would suffice to estimate its cubical content.

Archimedes did not confine himself to geometry. He enlarged the Greek numeration-scale, and showed its capacity for expressing the number of grains of sand that would fill a sphere of radius equal to the distance between the earth and the fixed stars. Of far more importance were his investigations in Statics. He proved mathematically that the weights attached to the unequal arms of a lever were in equilibrium when either weight was inversely proportional to the length of the arm. He followed up this truth by a long series of investigations into the centre of gravity of different geometrical forms.

The incident which is said to have directed his attention to the measurement of the density or specific gravity of bodies is well known. A body immersed in water will displace an amount of water equal to its bulk. A crown made of gold and silver will therefore displace more water than one made of pure gold, the weight of the two crowns being equal. Starting from this point he composed his remarkable treatise upon floating bodies, the first attempt made to estimate the pressure exercised by the elements of a fluid. Lagrange (in his *Mécanique Analytique*, part I. § 6) speaks of it as "one of the most striking monuments of the genius of Archimedes, containing a theory of the stability of floating bodies to which little has been added in later times."

We have, then, in the work of this great thinker the whole field of inquiry accessible to mathematical research opened up and

cultivated : the measurement of space, of number, and of force. He was perhaps the most perfect type of scientific intellect that has appeared in the world. Comte, in his mathematical treatise, always refers to him as the Great Geometer. [J. H. B.]

Archimedes' Works, Oxford edition, 1792. T. L. Heath: *The Works of Archimedes*, 1897; *The "Methods" of Archimedes* (a work lately re-discovered), 1912. P. Laffitte: *Grands Types*, ii. 279-377. Comte: *Synthèse Subjective*, ch. iii.; *Phil. Pos.* i. pp. 53, 426, v. p. 181; *Pos. Pol.* iii. 267-69.

THEOPHRASTUS, b. abt. 370 B.C., d. abt. 285 B.C.

THEOPHRASTUS was born at Eresus in Lesbos. He was sent by his father to Athens to study; and he became the most zealous among the pupils of Aristotle, who bequeathed him his library, and whom he succeeded in the Lyceum. Like several other philosophers, he was accused of impiety, but he made a successful defence against this charge. His school was very numerously attended, and at his death, in advanced age, it is said that nearly the whole population of Athens followed him to the grave.

Theophrastus wrote on many branches of philosophy and natural science. The three chief works that have come down to us are: (1) his *Characters*, a series of entertaining but rather slight sketches of weak or vicious tendencies; (2) his *Natural History of Plants*; (3) his *Conditions of Plant Life*. The last two form the first scientific treatise on Botany. They are written in the true Aristotelean spirit of close observation of Nature, directed with the purpose of seizing the type-form amidst individual variety.

He begins by studying the analogies between vegetable and animal growth. But he is met at once by this difficulty: Have plants organs such as may be detected in animals amidst all their diversities? It is difficult to assert this; for on comparing, *e.g.*, trees, grasses, and fungi, no organs seem common to all. He defines, however, as the best solution available, the root, the stalk, the branch, and the bud. For adequate knowledge of the nutrition of plants men had to wait till the chemical discoveries of the 18th century. Nevertheless Theophrastus noted that the death of a tree followed the removal of a complete ring of bark, which might have led him to an understanding of the cambium. Of the sexual reproduction of plants he knew little more than the vague distinction, due to popular observation, of certain plants into male and female, according as they bore or did not bear seed. Reproduction took place either by seed, or by buds, or by spontaneous generation. In the classification of plants he went no further than the distinction of plants, shrubs, and trees; remarking that under different conditions of the environment these were not seldom convertible. [J. H. B.]

Theophrastus: *Works*, by Schneider, 1818; *Enquiry into Plants*, Loeb Classics, 2 vols. See also E. Zeller: *Aristotle and the Earlier Peripatetics* (Eng. trans.).

HEROPHILUS, 3rd Century B.C.

HEROPHILUS was born at Chalcedon in Bithynia. He established himself in Alexandria under Ptolemy Soter, and devoted his life to anatomical study. Like Erasistratus, he is said to have performed operations on the living bodies of criminals. He gave much attention to the anatomy of the brain and nervous system. One of the cerebral sinuses still bears his name. That part of the fourth ventricle called from its appearance *Calamus scriptorius* was also defined by him. He was the first to distinguish the part of the intestine known as *duodenum* from the rest of the canal. These and other points we gather from references made by Celsus and Galen; for none of his works have reached us. [J. H. B.]

K. P. J. Sprengel: *Histoire de la Médicine* (French trans. from the German). Galen: *Œuvres.*

ERASISTRATUS, 3rd Century B.C.

ERASISTRATUS is thought to have been born at Iulis in the island of Ceos. Pliny speaks of him as a son of Aristotle's daughter Pythias; but of this there is no other evidence. It is probable that he studied under Theophrastus. He lived for some time at the court of Seleucus Nicator, where he gained much credit for relieving the king's son from a condition of nervous depression by the discovery of his love for Stratonice. But his real life's work was done in Alexandria, then in the full tide of intellectual energy, under the patronage of Ptolemy Soter. There he devoted himself to anatomical study, especially to the dissection of the human body; proceeding, it is said, in the case of criminals to vivisection, although from this source no discovery has been claimed. He wrote much on anatomy and on medicine; but we know his works only by the references to them in Celsus, Galen, and other writers. He appears from these to have had correct views of the anatomical relations of the heart and the great vessels connected with it. But he maintained the mistaken view that the purpose of the arteries was to collect air from the lungs and to distribute it through the body. Like Herophilus, his contemporary, he gave much attention to the anatomy of the nervous system, on the functions of which his views were far in advance of Aristotle. [J. H. B.]

K. P. J. Sprengel: *Histoire de la Médecine* (French trans. from the German). Galen: *Œuvres.*

CELSUS, 1st half of first Century A.D.

Of the life of Apuleius Cornelius CELSUS nothing is certainly known. He is said to have been a private secretary to Tiberius.

He is perhaps the Celsus to whom Horace refers in his epistle to Julius Florus as a compiler of books. He wrote a work on agriculture, including veterinary medicine, which is not extant. His work *de Re Medica*, which has survived, is a systematic treatise on the medical and surgical art of his time. It contains valuable observations on hygiene, especially on diet and exercise; on disease as modified by season, by climate, and by age; and on prognosis. We gather from it that in the treatment of chronic disease more use was made of external methods, as of baths, massage, etc., than has been common till lately in modern medicine. The tradition of Hippocrates—fine observation, guided by a sense of the unity of the organism—is apparent through this part of the work. On the surgical side we see the result of Alexandrian research. The description given of the bones, muscles, and other organs, though too brief for the requirements of modern surgery, and indeed less adequate than would have been given by a pupil of Galen, are yet fairly adequate. Practical surgery had made more progress at this time than is commonly supposed. Such operations, for instance, as those for the extraction of stone, for couching of cataract, and for trepanning, closely resembled those of modern surgery. The treatise is written in pure Latin of the best period. [J. H. B.]

Celsus: *de Re Medica.*

GALEN, b. 131 A.D., d. abt. 200 A.D.

Claudius GALENUS was born at Pergamum, in Asia Minor, A.D. 131. He received a careful training in the philosophy of Aristotle and Plato, and in medical practice. At his father's death he studied for many years at Alexandria, where he gained great reputation as an anatomist. At the age of 34 he established himself as a physician in Rome. But the great superiority of his scientific knowledge brought on him the jealousy of the Roman physicians, and he was ultimately driven from the city. The place and the precise date of his death are uncertain, but allusions in his writings show that he must have lived at least till the end of the second century A.D.

Galen represents the final outcome of the biological research of antiquity, instituted by Aristotle, and carried on at Alexandria with extraordinary zeal and success under the first two Ptolemies. In after times, when the great university had abandoned itself to metaphysical discussion, the systematic study of medicine, like geometry, had failed to attract thinkers and observers of original power, and had been carried on somewhat languidly. Galen revived it and enriched it with independent researches of the greatest value, to which, during the twelve centuries that followed, little addition was made.

A space of five hundred years separates Aristotle from Galen. The principal results achieved in that period may be briefly indicated,

though it is not always possible to determine what is due to Galen from what he owed to others. Aristotle, who discovered many of the fundamental principles of life, and who described many of its forms and organs with astonishing accuracy, was yet in almost complete ignorance of the tissues on which the two fundamental facts of animal life—motion and sensation—were dependent. Of the contractility of muscle, of the conductivity of nerve, of the brain as a centre of force, he knew nothing. Flesh or muscle, to him, was simply a complex of small blood-vessels, useful mainly as a covering to retain animal heat. Nerves for him were mere tendons; and the brain was a reservoir of cold substance the function of which was to control the temperature of the heart. (Ogle's translation of Aristotle's *de Partibus*, pp. 172-7.)

In Galen all these errors are corrected in a manner with which the modern physiologist could find but little fault. He describes the property of muscular tissue and the function of the principal muscles with perfect clearness. Of nerve he remarks that it is now admitted by all physicians that without it there can be neither motion nor sensation. He explains that section of a nerve is followed by paralysis and by loss of feeling in the part to which it is distributed. But he was aware, also, that the nerves originated nothing; they were simple channels through which sensation and motion were communicated from the brain and spinal cord to the muscles and other organs of the body. The brain he calls in some places an *Archê*, in others the centre of psychical force; the spinal cord was of the same nature. He describes with a near approach to accuracy the nerves issuing from the brain and from the cord; and he states that if the cord be cut through or injured in any part all the parts supplied with nerves coming from below the point of section or injury are deprived of motion and of feeling. From all this it is apparent that the biological conditions of animal motion were clearly grasped by Galen. What was wanting to him was the knowledge of mechanical principles not attained till the seventeenth century. Galen put this question (*Treatise on Spasm*): The limbs of animals weigh, and like other heavy bodies tend to fall to earth; how is it that they can move in every direction? Some force, he replied, came to the muscles from the brain through the nerve, and acted "as a vehicle or wing of motion." Beyond this it was impossible to go, until Galileo, Newton, and others had founded the science of Rational Mechanic, and the equality of Action and Reaction has been understood. Till then the void must be supplied by such metaphysical abstractions as vital force or animal spirits.

As to the blood and blood-vessels, Galen's views were of course imperfect, yet they show an advance on previous knowledge. The anatomical distinction between arteries and veins was known to him. He describes the blood of the arteries as light and thin and modified by the air breathed into the lungs: the blood of the veins being dark and thick. He refutes in great detail the view of Erasis-

tratus that the arteries contained air, and that when an artery was wounded, air escaped in the first place : the blood that followed being absorbed from the venous system. It has been lately shown that Aristotle came nearer to the truth in this matter than his immediate successors.

Into Galen's descriptions of the other organs of the body it is not possible here to enter. His scientific works, summing up the labours of the Alexandrian Schools with important additions of his own, represent Anatomy and Physiology as known to the ancient world. For more than a thousand years no addition was made. At the Renaissance, the anatomists of Italy brought their intellect to bear on this rich inheritance of knowledge. They altered much ; but still greater was the part which they had no need to alter.

Of Galen as a physician little need be said here. It is probable that the anatomical researches of Alexandria, which did much for Surgery, had not been of equal benefit to Medicine : perhaps, indeed, had injured medical practice by diverting attention from the whole to the parts. A mass of remedial agents, most of them futile, had not added to the dignity or efficiency of the art. Galen's principal service in this matter was to revert to the direct and simple observations of Hippocrates, whose transcendent greatness he recognised, and of whom he speaks with unvarying respect as the " servant of Nature." The physician, he said, should be a philosopher in the twofold sense of that word. He should have studied the order of the universe as mathematical science has revealed it : and he should be master of his own passions, preferring always the pursuit of truth to professional gain. [J. H. B.]

There are many editions of Galen ; the most useful is Kühn's (Greek and Latin, with good index). Of his works, note especially the following : the *Manual of Anatomy*, the *Use of Parts*, the *Treatises on Muscular Motion*, on the *Dissection of Nerves*, and on *Spasm and Tremor* ; but the only work translated into English is A. J. Brock's *Galen on the Natural Faculties* (Loeb Classics). *On the Uses of the Parts of the Body*, is translated into French by C. V. Daremberg in Galen's *Œuvres*.

AVICENNA, b. 980 A.D.

Ibn Sina, commonly called AVICENNA, was born at Kharmatain, near Bokhara, and was educated in that city. At the age of ten he is said to have shown great knowledge of the Koran, and of Hindu arithmetic. Under a scholar of note, Al-Natheli, he studied Logic, Euclid, and Hipparchian astronomy as contained in the Almagest, showing extraordinary zeal for study, and when his meditative powers flagged, restoring their balance by prayer. With mathematics and philosophy he combined the study of medicine : and is said, in his eighteenth year, to have cured the Sultan of Bokhara of a dangerous disease. At his father's death Avicenna for a short time succeeded him as Minister to the Sultan. But a change of dynasty occurring, he left that post, and spent some years in travel. His great work, the *Book of the Canon in Medicine*, was

written in Jorjân. He held other official posts, and ultimately settled in Ispahan, where many of his works were written. He died at Hamadan, but at what age is uncertain. His works, philosophical, mathematical, and medical, are extremely numerous.

[J. H. B.]

K. P. J. Sprengel; *Hist. de la Médicine*. There have been several Latin translations of the *Canon*, which was for over five hundred years the standard work on medicine in the universities of Europe, and was not discarded at Montpellier and Louvain till the eighteenth century.

AVERRHOES, b. 1149, d. abt. 1200 A.D.

Ibn Roshd, commonly known as AVERRHOES, was born at Cordova, where his father held the office of mufti (chief magistrate) of Andalusia. His father taught him Mohammedan law: under other tutors he studied theology, philosophy, and medicine. He succeeded his father as mufti of Andalusia, and afterwards held a similar post in Mauritania; but his theological speculations, in which he had attempted to reconcile predestination with free will, involved him in a charge of heresy, and after a public recantation he was dismissed. Ultimately he retired to his native town, and was then reinstated in his former office, which he held till his death, variously dated at 1198 or 1206.

Averrhoes was a voluminous writer. To Dante he was known as he who wrote the Great Comment, Aristotle being the author commented: though he also wrote on the *Republic* of Plato. Of his medical works the chief is the work called *The Total* (Kulliyat), a treatise in seven books, dealing successively with Anatomy, Health, Diseases, Symptoms, Drugs and Foods, Regimen, Treatment of Disease. [J. H. B.]

K. P. J. Sprengel: *Hist. de la Médicine*. E. Renan: *Averroès et L'averroïsme*.

HIPPOCRATES, b. about 470 B.C.

Little is known of the life of HIPPOCRATES except that he was born at Cos, one of the Sporad islands near the Carian coast, in the second half of the fifth century B.C.; that he belonged to a family which had practised the medical art for many generations, as priests of the god Asclepios; that he travelled widely, and that he resided for some time with Perdiccas, king of Macedonia. His grandfather bore the same name, as also did several of his descendants; and in this way, perhaps, it has come about that many works were attributed to him which are not of his composing. The few as to which the judgment of scholars is unanimous are, however, sufficient to justify his fame.

An order of priest-physicians, tracing their origin to a legendary hero or deity, Asclepios, called in Latin Æsculapius, was widely diffused through the islands and mainland of Greece during the centuries between Homer and Æschylus, and retained a measure

of influence till the fall of Polytheism. The traveller Pausanias, writing in the time of the Antonines, mentions many of the shrines of this deity; one of them, that of Epidauros in Argolis, he describes minutely. It was placed, facing eastward, in a grove sheltered by hills, on which stood temples of Apollo and Artemis. The statue of the god Asclepios was of colossal size; in one hand was a staff, the other rested on a serpent's head; a hound lay at his feet. On the walls and ceiling were pictures and reliefs of Bellerophon slaying the Chimæra, Perseus with Medusa's head, Cupid holding the lyre, his arrows and bow cast aside. On a series of pillars were engraved the names of those who had been cured of their diseases, with a brief record of their treatment. For these temples of Asclepios were used as hospitals by the Greeks. Usually the sites were carefully chosen, so as to secure shelter from cold winds, sunny aspect, pure air and water. In the treatment, moral and physical remedies went together. Simple potions, and that kind of action on the skin and muscles which has been revived by modern medicine, were combined with fasting and prayer.

Upon this mass of theocratic experience, Hippocrates brought to bear the new positive spirit which, for more than a century, had been permeating the Grecian world—the spirit of unprejudiced observation and of careful search for law and orderly succession, as applied to the phenomena of disease. His denial of the doctrine that any one disease was of specially divine origin is significant. None, he said, was more or less divine than another. All were divine; all were subject to their own law of growth.

Before appreciating what he did, let us see clearly what it was impossible for him to do. Modern medicine, though not a science, since it deals with individuals, yet tends steadily to become a scientific art, founded on the science of Biology, which is itself dependent on the sciences of Chemistry and Physics. But for a physician in the fifth century B.C., a rational explanation of such facts as the action of the heart, the motions of limbs, respiration, digestion, and animal heat was impossible. The dependence of living organisms on outside forces he could not deny. But he knew not what these forces were, nor how they worked. Vague notions of planetary influence, of heat and cold, of dryness and moisture, supplied the void. Direct observation of the facts of disease was, of course, open to him as to physicians of our own time. But to observe without a theory, avowed or implicit, to connect the observations, is all but impossible; and yet, if the accepted theory be false, the observation will be warped. From this vicious circle it is the glory of Hippocrates to have escaped, so far as escape was possible. He carried out a long series of fine and accurate observations untinged, or nearly so, by false theory, guided implicitly by two profoundly positive conceptions, the Synergy, or co-operation, of the functions, and the action of the environment on the organism.

The characteristic feature of his method was that all his observa-

tions tended to Prognosis ; that is, to a forecast of the course which the disease, left to itself, would follow. His treatise on Prognostic (and the same may be said of many of his Aphorisms) forms a practical commentary on Comte's motto, "*Savoir, pour prévoir, afin de pourvoir*" ("See that you may foresee, and so provide"). "He will manage the cure best," he says, "who foresees what is to happen from the present condition of the patient." "To such a physician," he continues, "men will be willing to intrust themselves." And this was fundamental ; for, as the first of his Aphorisms has it, "It is not enough for the physician to do what is right himself ; he must make the patient, the nurse, and all surrounding circumstances co-operate with him."

This is not the place for medical details. But his vivid picture of the signs of approaching death in acute disease is known to many through a passage of Lucretius. The sharp nose, the hollow eye, the collapsed temples ; the ears cold, contracted, with everted lobe ; the skin of the forehead rough, distended, parched ; the colour of the face green, black, livid, or leaden, are described with unsurpassable accuracy. And yet, here as always, he is careful to add that, for a sound judgment, not these signs alone but the whole series of antecedent facts, such as previous starvation or the reverse, must be taken into account. His whole work is a protest against specialism. He placed Prognosis above Diagnosis, as practised at the neighbouring Asclepion of Cnidos. To us the nomenclature of disease, the detection of the particular organ or tissue involved, is far more important, and far more practicable, than in the time of Hippocrates. But, even so, it remains of greater consequence to keep in mind the essential unity of disease, to measure its intensity, to take into account personal constitution and surrounding circumstances. And this is what Hippocrates taught physicians to do.

On the physical environment Hippocrates has left us a masterpiece—his *Treatise on Air, Water, and Places*. It is a comprehensive study of climate in the largest sense, containing a mass of wise and fine observations on air and prevalent winds ; on sunlight, water, soil ; on seasonal changes and prevalent vegetation ; and, finally, on the constitutional tendencies of various populations in Europe and Asia, which, when once formed by those influences, were perpetuated by heredity.

On the whole, then, it may be said that Hippocrates, by his large conception of the facts of disease, not merely founded the art of Medicine, now and henceforth set free from theocratic fetters, and destined to play so important a part in western civilisation, but also prepared the way for the scientific study of Life, soon to be founded by Aristotle, and continued by the great school of Alexandria. Implicitly, but strongly, he grasped the two essential features of biological science, the correlation of functions, and the adjustment of organism to environment.

It remains to note those of his works which the best critics agree to be genuine. These are, the *Aphorisms* (with few exceptions); the *Prognostics*; the first and third books of the *Epidemics* (a clinical account of cases of disease occurring in Thasos, in relation to the prevailing character of the season); *Regimen in Acute Disease*; the treatise on *Air, Water, and Places*; and a work on *Injuries of the Head*. Finally, the oath to be tendered to all members of medical guilds is believed by most, though not by all, to be of his framing. It is certainly of the time of Hippocrates; and it embodies ethical traditions of Theocracy of the greatest value. The candidate for admission swore by Apollo the Physician, and Asklepios, to show filial respect to his teacher; to share his knowledge freely with his brothers of the guild; within the house of the patient to behave with stainless honour, and never to divulge a secret. [J. H. B.]

Mention of Hippocrates is made, *Pos. Pol.* i. 459, 465, 586, and ii. 365. The *Aphorisms* and the *Treatise on Air, Water, and Places*, are in the Positivist Library. Of the latter the Greek text with Latin, French and English translations has been privately issued by Dr. Burnell. The classic editions of Hippocrates are that of Littré (Greek text and French trans.); in English, that of Adams, published in 1849 for the Sydenham Society. E. T. Withington: *Medical History from the Earliest Times.*

EUCLID (*Eucleides*), abt. 300 B.C.

That EUCLID taught mathematics in the school of Alexandria under the first of the Ptolemies, is all that is known with certainty of his life. Pappus speaks emphatically of his friendliness to other students of mathematics, contrasting him in this respect, rightly or wrongly, with Apollonius. Euclid wrote on several mathematical subjects, notably on the Data for determining the possibility of a problem, and on *Conic Sections*; but his work on elementary mathematics, which has had the singular fortune, in this country at least, to identify a writer with the science of which he treats, can alone be here considered.

Broadly speaking, this work consists of four divisions. The first, which includes the first six books, treats of such plane figures as can be described with rule and compass; dealing, first with equal magnitudes, subsequently with magnitudes that are unequal but similar. The second book, establishing equations, and the 5th and 6th dealing with proportions, may be regarded as containing the essential principles of Algebra. The second part, including the 7th, 8th, and 9th books, is a treatise on arithmetic. The third part, corresponding to the 10th book, discusses incommensurable magnitudes. The fourth division, including the 11th, 12th, and 13th books, discusses the geometry of solids. The books called 15th and 16th are by a later writer, probably Hypsicles.

Euclid was a compiler and arranger, not a discoverer. Thales had discovered the constancy in the angles of all triangles, and the proportionality of sides where the triangles were similar. The school of Pythagoras studied the regular solids, and the relation

of their bounding lines and surfaces. This led them to investigate proportion, and especially the famous problem of the Golden Section (Euc. *Ele.* ii. 11) leading to the discussion of incommensurable magnitudes, and of the duplication of the cube ; this last involving the insertion of two mean proportionals, a problem which Euclid's *Elements* do not enable us to solve. In these researches they evolved the analytical method, erroneously attributed to Plato. Archytas, the last of the Pythagoreans, was the tutor of Eudoxus, who is expressly stated by Archimedes to be the discoverer of certain propositions on the similarity of solids (Euc. *Ele.* xii. 7 and 10), which imply possession of the Method of Exhaustions (Euc. *Ele.* x. 1). Euclid is spoken of by Proclus as the arranger of many works of Eudoxus and the completer of many of Theætetus. These latter were on incommensurables, discussed by Euclid in his 10th book—the one therefore in which he has the strongest claims to originality.

Though the claims of Euclid as a discoverer are thus reduced to narrow limits, his function as a systematic arranger of mathematical truths was one of great importance. Doubtless exaggerated value, especially in this country, has been attributed to it. The degeneracy of philosophic speculations in his time led to circuitous demonstrations of much that might have been more shortly stated ; and most mathematicians are agreed that his arrangement admits of improvement. But as an historical monument of the claims established by geometry in the fourth century B.C. to be an instrument of education, the *Elements* of Euclid will remain for ever memorable. [J. H. B.]

G. J. Allman : *Geometry from Thales to Euclid*, pp. 201-5. *The Thirteen Books of Euclid's Elements* trans. by Sir T. L. Heath, 1908. *Pos. Pol.* iii. 266.

ARISTÆUS (*Aristaios*), 4th Century B.C.

Of the life of ARISTÆUS no details have been preserved. But, from the notices of his work contained in Pappus, we find that he is one of the predecessors, and probably a senior contemporary, of Euclid. He wrote on the five regular Solids, and also on *Conic Sections* ; the latter work being highly appreciated by Euclid. His work on the first of these subjects contained the theorem that when a dodecahedron and icosahedron, solids of 12 and 20 sides, were enclosed in the same sphere, the same circle circumscribes the pentagon of the former and the triangle of the latter. This we learn from Hypsicles, who supplies the chain of proofs ; from which we find that the principal propositions of the 13th book of Euclid were known to Aristæus : and indeed that this book was compiled in great part from his work. Aristæus is specially mentioned by Pappus amongst those who prosecuted the analytic method, by the aid of which these discoveries were made ; the method first cultivated by the Pythagoreans in their studies on the measurement of solids, and especially on the duplication of the cube. [J. H. B.]

G. J. Allman : *u.s.* 194-205.

THEODOSIUS of Bithynia, abt. 50 B.C.

Of THEODOSIUS himself nothing is known. One Theodosius of Bithynia is cited as a mathematician by Vitruvius as the inventor of a universal sun-dial. A Theodosius of Tripolis is cited by Pappus and others, and was said to be later than the reign of Trajan, in the second century A.D. Some authorities have attributed the extant works to the latter. But perhaps the Theodosius of Bithynia was subsequently settled at Tripolis, and is the same who is mentioned by Pappus. He has left three works—on *Spherical Geometry*, on *Habitations* (a work on astronomical geography), and on *Days and Nights*.

In the first are stated and proved several important propositions, as that the section of a sphere by a plain is a circle ; that the plane touches the sphere in one point only, the line from which to the centre is perpendicular to the plane ; that every circle passing through the centre is a great circle ; that secondary circles parallel to a great circle, and at equal distance, are equal to each other ; that great circles mutually bisect ; that the distance of the pole of a great circle to any point of its circumference is the side of the inscribed square.

The treatise on *Habitations* describes the different aspects of the heavens visible at different parts of the earth's surface, according to their latitude and longitude.

The third treatise, on *Days and Nights*, is an attempt to fix the precise variation of the day and night throughout the sun's annual path through the heavens, and to determine the period within which these variations will occur in the same way ; in other words, to fix the precise relations of the day and the year. [J. H. B.]

Delambre : *Astronomie Ancienne*, vol. i. ch. 13.

HERO of Alexandria, 1st Century B.C.

HERO was a pupil of Ctesibius, with whom his name is constantly associated. By some authorities the date of Hero and of Ctesibius is referred to the century preceding ; and there is a very much later Hero of Alexandria, who also wrote on geodesy. Hero is the author of a collection of works bearing on the application of geometry to the arts of life, and especially on practical mensuration. Geometry had originated, so Herodotus tells us, in the difficulties created by the inundations of the Nile, when boundaries had to be resettled. Modern research has gained from Egyptian records a mathematical treatise written by Ahmes, between the seventeenth and twentieth centuries B.C. We find in it many practical rules of mensuration ; but these are never demonstrated, and are not always accurate. For instance, the area of an isosceles triangle is taken as half the rectangle formed by the base and one of the sides. Egyptian geometry was strictly

limited to the utilitarian purpose of measuring boundaries, and of seeing that the direction of temple walls and the sides of pyramids were true to the pole and to the points of the compass.

In Hero's hands scientific geometry, which had arisen long ago from the practical work of life, now reverted to its source. He gave the first example of the systematic application of science to industry. In finding the angles necessary for the determination of the area of a field, he used an instrument called the dioptra, the germ of the modern theodolite, consisting of a ruler pivoting on a horizontal circle, and furnished with sights. The horizontal was kept true by a water-level, the vertical support by a plummet; indeed the instrument wanted little but the telescope and the vernier to render it equal to modern appliances. It was thus possible, with the scientific laws which had now become familiar, to set out a line between two points neither of which could be viewed from the other, and fix the distance from the observer of an inaccessible point, or between any two such points; and, generally, to survey a tract of country, or to restore a boundary of which the plan existed and one or two points were known.

Hero wrote other works on the raising of weights, on projection of missiles, on the use of compressed air or steam as motive agents. No immediate result followed from these; but they illustrate the tendency of his time to bring science into contact with industry.

[J. H. B.]

Pos. Pol. iii. 264. Cantor: *Geschichte der Math.* pp. 56 and 318-343.

CTESIBIUS, 120 B.C.

CTESIBIUS of Alexandria is mentioned by various writers as the teacher of Hero. Pliny speaks of him as the inventor of pumps for raising water, and as the author of studies on the expansive force of air and steam. Vitruvius gives a description of some of his inventions. The pump was almost identical with the forcing-pump in modern use. Water was drawn through an entrance-valve into an exhausted cylinder, and expelled from it through an exit-valve by the descent of a piston. Vitruvius describes also a very complicated water-clock invented by Ctesibius. The measurement of time was very imperfectly effected by the ancients, and was a great difficulty in their astronomical researches. Time, as we know from the speeches of Demosthenes, was rudely measured by the escape of water through a small opening in a vessel, like that of sand through an hour-glass. Obviously the escape was more rapid at the beginning when the pressure was strongest. The water-clock of Ctesibius must have avoided these defects if, as Vitruvius asserts, it showed the hour, day, month, and sign of the sun. Presumably the vessel of water was kept constantly full, so as to ensure equal quantities being discharged in equal times.

Ctesibius is mentioned in this calendar, in conjunction with Hero, as an example of the tendency, in the Museum of Alexandria, to apply science to industry. [J. H. B.]

Pos. Pol. iii. 264.

PAPPUS, abt. 380 A.D.

PAPPUS was a contemporary of Theon of Alexandria, and taught mathematics in that city during the reign of Theodosius I. He wrote a commentary on the *Great Syntaxis* [*Almagest*] of Ptolemy, which has not come down to us. He is known to us by the work entitled *Synagoge* or *Assemblage*; a collection in eight books of mathematical papers having no very distinct connection, and consisting of commentaries on the geometrical work of the previous six centuries, enriched by very fruitful additions of his own. For the history of ancient mathematics this work, of which the last six books and part of the second have been preserved, is invaluable. Already in the third century B.C. the filiation of discovery, so evident in this science, had been traced by Eudemus, a pupil of Aristotle, parts of whose work have been preserved by Proclus. Pappus supplies many details of Apollonius and of later writers who would otherwise have been unknown to us. Special studies on isolated problems occupy the greater part of his attention. Various modes of inserting two mean geometrical proportionals are discussed; new methods of inscribing the five regular solids in a sphere are put forward (book iii.). There are special studies on various curves; as the spirals of Archimedes, the quadratrix of Dinostratus, and the conchoid of Nicomedes. Much attention is given to the work of Zenodorus on isoperimetry; and new problems on this subject are solved (book v.). In the 6th book the earlier astronomers are spoken of.

The 7th book is the most important, historically speaking. We find here the highest point reached by the geometrical analysis of antiquity; the starting-point of the mathematical revolution instituted by Descartes. Pappus speaks of Euclid, Aristæus, and Apollonius as the chief cultivators of this department, and as having turned their attention to what were called solid loci, *i.e.* to problems which could only be solved by the use of one of the conic sections. One of these problems was of this kind: Let three, four, or more lines be given in position; required the locus of the point from which the same number of lines may be drawn to meet them one to each, at given angles, such that, in the case of three lines, the rectangle of the first two lines may have a fixed relation to the square of the third; or, in the case of four lines, that the rectangle of the first and second may have a fixed relation to the rectangle of the third and fourth, and so on. Pappus was aware that in the case of three, or of four, lines the locus of the point was a conic section. But what

the locus was when the lines were more numerous he declared himself unable to determine. This was the problem that Descartes undertook to solve. His success, and the momentous consequences that followed from it, depended not merely on the use of algebraic notation in geometrical problems, but on the broad conception of equation and curve as two correlated aspects of the same problem, and on the entire generality of the methods used in attacking simultaneously problems which till then had been handled separately. "The spirit of the geometry of antiquity," Comte remarks in his treatise of *Analytical Geometry* (p. 7), "was essentially synthetic: that is to say, the various conditions of each problem were studied for the most part in their entirety. It is true that what was called geometrical analysis had been used in an accessory way; and this may be regarded as a first approach to the modern system; although the absence of algebraic conceptions, by which alone the separation of the various conditions of the problem could be fixed and pursued to its final consequences, deprived this procedure of its main value; so that by the geometers of Greece it was more preached than practised. The spirit of modern mathematics since Descartes is to isolate the various conditions of a problem, and thus arrive at a perfectly general solution for each. It is thus, in the strictest meaning of the word, Analysis." [J. H. B.]

Descartes: *Geométrie. Livre prémier.* Cantor: *Geschichte der Math.* pp. 371-388.

DIOPHANTUS, 3rd or 4th Century A.D.

Not merely is nothing known of the life of DIOPHANTUS, except that he lived in Alexandria, but his very century is doubtful. Theon, the father of Hypatia, mentioned him, and Hypatia herself is said to have written a commentary on his work. It appears not improbable that he was a contemporary of Pappus. Others place him in the fifth century.

The works known to have been written by him are the *Arithmetics*, in thirteen books; a work on *Porisms*, and another on *Polygonal Numbers*. Of the thirteen books on *Arithmetics*, six only have come down to us, unless indeed, which is not improbable, the other works formed part of this treatise. The *Porisms* are not extant; of the *Polygonal Numbers* we have a fragment. The missing portions of the *Arithmetics* are probably those intermediate between the first and the remaining books. The works of Diophantus were much studied in the Arabian schools; they were translated by Abul Wafa in the 10th century, and were probably known to the greatest of Arabian algebraists, Mohammed Ibn Musa, in the previous century. How far their influence extended to India is matter for conjecture. In Western Europe Diophantus was not known till the 15th century, and was not seriously studied till the sixteenth.

The *Arithmetics* of Diophantus differ from any other mathematical work of the Greeks, in presenting to us Algebra dissociated from Geometry, and applied to the abstract study of Number. It is not, however, so much a text-book on algebra as a collection of algebraic problems, arranged to some extent, though not entirely, in the order of complexity. The first book premises a few definitions and explanations of notation, and then presents a series of problems leading to determinate equations of the first degree. The method for handling these is given; the solution of quadratic equations is promised, and was probably given in one of the missing books; it is presupposed in the problems that follow. The greater part of the work as we now have it is occupied with indeterminate analysis of the second degree. Only one unknown quantity is used; to make a given function of this unknown quantity "equal to a square," is the form in which the problem is presented: corresponding to what in modern style would take the shape $Ax^2+Bx+C=y^2$. Extraordinary dexterity is shown in handling the problems proposed. He is seen to be in possession of many results in the theory of numbers, as that a square number could be divided into two squares in any number of ways; and generally of the properties of numbers which are the sum of two squares. Of numbers regarded as the sum of three, and even of four, squares he had evidently made some, though doubtless an imperfect, study.

Diophantus uses an elaborate system of notation, including certain symbols of operation. The unknown quantity was expressed by the word ἀριθμός, Number, and by a sign commonly called Sigma, but perhaps an abridgment of the first two letters αρ. The second power of x is written δ^{υ} for δύναμις; the third κ^{υ} for κύβος, the fourth, fifth, and sixth are $\delta\delta^{\upsilon}$, $\delta\kappa^{\upsilon}$, and $\kappa\kappa^{\upsilon}$ respectively, answering to the words δυναμοδύναμις, δυναμόκυβος, κυβόκυβος. Absolute numbers are indicated by the prefix μ^{o}, for μόναδες or units. Fractions are noted by placing the denominator above the line to the right of the numerator. There is a symbol for subtraction, and also for equality, taken from the initial letters of the corresponding Greek words. [J. H. B.]

T. L. Heath: *Diophantos of Alexandria*, 2nd ed., 1910. *Pos. Pol.* iii. 277.

APOLLONIUS, 250-200 B.C.

APOLLONIUS of Perga, in Pamphylia, so called from the place of his birth, was a younger contemporary of Archimedes, and probably survived him about ten years. Of the details of his life little is known. He studied mathematics at Alexandria under the successors of Euclid. Much of his life was spent at Pergamum. His great work on *Conic Sections* is dedicated to a certain Eudemus of that city. This work is in eight books, of which, in the time of Descartes, the first four only

were known to be extant. Shortly afterwards the fifth, sixth, and seventh books were discovered in their Arabic translation—an important discovery, since they reveal mathematical powers which the students of the first four had hardly suspected. Apollonius wrote many other works on mathematical subjects, of which little more than the title has come down to us. In one of these he endeavours, as Archimedes had done, to enlarge and improve the Greek system of numeration. A fragment of another work, on irrational quantities, has been discovered in Arabic and translated into German (Leipzig, 1889): and it is possible that others may yet be restored from a similar source. By contemporaries and successors he was spoken of as the Great Mathematician.

The curves produced by a plane that cuts a cone had been examined by several previous geometers. Allman (pp. 153-163) has shown that they were first observed by Menæchmus, a pupil of Eudoxus, who made use of both the parabola and the hyperbola in solving the famous problem of inserting between two given lines two mean proportionals—in other words, the problem of duplicating the cube. Euclid, the elder Aristæus, and Archimedes devoted much attention to these curves; the quadrature of the parabola being one of the most remarkable achievements of Archimedes.

Apollonius was accused by some of founding his reputation on unacknowledged debts to these great predecessors. That he had studied their works is obvious: not less so is it that he made the subject his own by exhaustive handling, and by original development of it. The names which the Conic Sections now bear are in all probability due to him. Before his time each of the three curves was regarded as resulting from a plane cutting the side of the cone at right angles; and only right cones, *i.e.* those in which the axis was perpendicular to the basis, were considered. If the cone were such that the angle at the vertex was a right angle, the section thus made was a parabola: if the vertical angle were acute, the section was an ellipse; if obtuse, an hyperbola. Apollonius showed that all these curves could be produced in every cone, whether right or oblique, by varying the inclination of the cutting plane. His generalised treatment of those three curves, apparently so diverse, was in itself a considerable step. The inevitable tendency of Greek, as contrasted with modern, geometry, was to specialise the study of each curve. In the work of Apollonius we have to recognise the first, though but a slight, advance towards the great conception of Descartes, who applied general methods to the treatment of all curves whatsoever. The names given by Apollonius to these curves illustrate this general treatment. "The rectangle applied to a certain straight line in the section of the acute-angled cone is deficient (ἐλλείπει) by a square: in the section of the obtuse-angled cone it is excessive (ὑπερβάλλει) by a square: finally, in the section of the right-angled cone, the rectangle applied (παραβαλλόμενον) is neither deficient nor excessive." (Pappus, quoted by Allman, p. 196.)

"The fifth book," says Cantor in his recent *History of Ancient and Mediæval Mathematics*, "far surpasses the preceding. Apollonius rises far above his time by his series of propositions on the longest and shortest lines that can be drawn from a given point to the circumference of a conic section. He begins by remarking that previous mathematicians had treated of the theory of shortest lines. But their mode of handling it must have differed substantially from his; their purpose being limited to the determination of the limits (*diorismus*) within which a given problem was possible. Apollonius generalised the problem of *maxima* and *minima*: regarding it, as he expressly says, as one of those things worthy to be considered on the ground of their intrinsic importance. The way in which he distinguishes special cases in this department, and, by grouping them together, fixes the range of possible cases—the marvellous, indeed almost unnatural, complexity of his demonstrations, excite and deserve our wonder. In determining these longest and shortest lines, Apollonius first treats the cases in which the given point is situated on the axis of the curve. Then follow a series of propositions relating to the modern conception of sub-normals. The constancy of this line in the parabola is shown. Later on, the proof is reached that the greatest and least lines previously spoken of are normals to the curve; thus the problem arises, to draw normals to a conic section from any point in its plane. He now discovers that the number of such normals depends partly on the curve, partly on the position of the point chosen: further, that there are certain points from which only one can be drawn. These points correspond to the centres of the osculating circles, their series forming the curve known as the Evolute. Of the points in question Apollonius was clearly aware, and probably had some conception of the curve resulting from them." [J. H. B.]

Cantor: *Gesch. der Math.* pp. 294-5. T. L. Heath: *Apollonius of Perga. Pos. Pol.* iii. 266-270.

EUDOXUS, b. 407, d. 354 B.C.

EUDOXUS studied geometry under Archytas the Pythagorean (see under "Ancient Philosophy" § ARCHYTAS). When a young man he visited Athens, and remained there two months with the view of hearing the lectures of Plato and others: but he entered into no intimate relations with Plato. Then he travelled in Egypt, and here composed his *Octaëteris*, a work on the correspondence of solar and lunar revolutions. Ultimately he took up his abode in Cyzicus, where he founded a school of geometry and astronomy. At the height of his reputation he paid a second visit to Athens, accompanied by many of his pupils. Here he may probably have seen Aristotle, who, in the *Ethics* (x. 2), speaks in high terms of his moral character. Thence he returned to his native city, Cnidus, in Asia Minor, where he was received with every sign of respect. The tower from which he made

astronomical observations was pointed out to travellers for many generations afterwards.

The titles of two of his astronomical works, the *Mirror* and the *Phenomena*, have been preserved. Their substance has been preserved, though not perhaps with great accuracy, in the poem of Aratus, a commentary on which is the first work of Hipparchus. In this work Eudoxus endeavoured to frame a map of the stars, and of the times of their rising and setting, with a view to determine the precise relation of the sun's path in the heavens to the equator. To represent the apparent motion of the sun and the planets, he devised a complicated system of spheres moving simultaneously with unequal velocities. For this he has been derided : but the method, developed and modified afterwards by Apollonius, Hipparchus, and Ptolemy, is strictly scientific in principle.

As a geometer, Eudoxus holds a very important place. Proclus tells us, in speaking of Euclid, that he arranged much of what Eudoxus had discovered. Archimedes, in one of his letters, expressly states that Eudoxus proved that the pyramid was the third part of the prism, and the cone the third part of the cylinder, of the same base and altitude ; and further, that these theorems were discovered by a method similar to that which led to his own discovery of the quadrature of the parabola—that is, by the Method of Exhaustions indicated in Euclid (x. 1), and developed in the 12th book. There is good reason also to attribute to Eudoxus the accurate doctrine of proportions contained in the 5th definition of the 5th book, as contrasted with the 21st proposition of the 7th book, which only applies to commensurable magnitudes. In dealing with this subject he developed the analytical method : proving that every solution greater or less than the one considered issued in contradiction.

The work of Eudoxus is mentioned by Comte as the point of definite separation between philosophy and science. Indeed, after his time the two sciences of mathematics and astronomy were usually pursued by different thinkers. [J. H. B.]

G. J. Allman : *Greek Geom.* pp. 128-152. *Pos. Pol.* III. 265.

ARATUS, about 270 B.C.

ARATUS was born in Cilicia. He resided for some time at the court of Antigonus of Macedonia, son of Demetrius Poliorcetes ; and here he composed his principal work, an astronomical poem paraphrasing the *Phenomena* of Eudoxus.

In this poem are described the principal features of the celestial sphere : the axis terminated by the north and south poles ; perpendicular to the axis, the great circle of the equator, and the two circles of the tropics. Inclined to the circle of the equator was that of the zodiac, containing the twelve constellations through which the sun pursued his annual course. Another circle equally dividing the

heavens was the Milky Way. The independent planetary motions are spoken of, but no attempt is made to define them. The *Phenomena* of Aratus was carefully studied by Virgil, and was translated into Latin by Cicero. A quotation from it occurs in the speech recorded to have been delivered by St. Paul at Athens (*Acts* xvii. 28).

[J. H. B.]

Delambre : *Astronomie Ancienne*, vol. i. ch. iv.

PYTHEAS, about 330 to 280 B.C.

PYTHEAS was a native of Massilia (Marseilles). He left an important work descriptive of his own travels in Western Europe, of which, however, we know little but what is contained in the systematic work of Strabo. He is also mentioned by Polybius and Pliny.

He greatly enlarged the knowledge of his time as to the Atlantic sea-board, tracing with considerable accuracy the west coast-line of Spain, and Gaul as far as the mouth of a river called by him the Tanais, but which probably was the Elbe. From his descriptions of amber, it has been supposed that he entered the Baltic ; but as amber was found in large quantities through the Middle Ages on the Schleswig-Holstein coast, the proof that the Baltic was known is insufficient. Of Britain he was one of the earliest explorers. He exaggerated its size, giving its coast-line as 40,000 stadia (4000 miles) : but he had a more accurate view of its extension from south to north than Strabo, who placed it lengthwise along the English coast, and imagined Ireland to be north of it rather than, as stated by Pytheas, to the west. Six days' voyage farther to the north Pytheas places the island of Thule ; but this he does not assert that he visited himself.

Strabo criticised Pytheas severely : but in some important points is inferior to him in accuracy : as, for instance, in denying the projecting outline of the land of the Ostimii (Brittany), which Pytheas had indicated. Many other points testify to Pytheas having written from personal observation. He describes the gradual disappearance of certain kinds of grain as the traveller moves northwards ; the use of fermented liquors made from corn and honey ; the thrashing of corn in barns instead of open floors, as usual in drier and warmer climates.

But the place occupied by Pytheas in the week of Hipparchus is due to his having led the way in the application of the new science of Astronomy to the accurate determination of the earth's surface, which we call Geography. By an observation of the sun's altitude at Massilia, at noon of the summer solstice, he fixed the latitude of that place—*i.e.* its distance from the equator—at very nearly the true amount. He compared it with that of Byzantium ; and here, at least, was the first step taken to accurate geography, the institution of a parallel of latitude. He observed the increasing difference between day and night at the solstices as the traveller went northwards ; and speaks of Thule as situate in a region where the day in

summer, or the night in winter, was of twenty-four hours. He noted also the Atlantic tides, and saw, though he did not accurately state, their dependence on the moon's phases. Pytheas, in fine, opened the path into the field which Eratosthenes after him cultivated with such success. [J. H. B.]

E. H. Bunbury : *Hist. of Anc. Geography*, vol. i. ch. xv. pp. 589-600.

NEARCHUS, second half of Fourth Century B.C.

The famous admiral of Alexander was by birth a Cretan, settled at Amphipolis. He was first a partisan, then friend and officer of the king, and accompanied him in his Indian campaign. NEARCHUS was chosen by Alexander to command the fleet which he despatched from the mouth of the Indus to the Persian Gulf. This memorable voyage, carried out with great energy and skill by Nearchus, lasted from September 325 until February 2, 324 B.C., when he arrived at Susa, after traversing the whole Persian Gulf and ascending the Tigris. After the death of Alexander he attached himself to Antigonus and his son Demetrius, and the last time that we hear of him is in 314 B.C.

Nearchus himself wrote an account of his voyage, the *Paraplous*, which has been lost, but the substance of it is preserved in Arrian's *Indian History*, of which the later chapters (18-43) are a full summary of the original narrative. The courage, resource, and audacity displayed by this early discoverer are fully illustrated in Arrian's narrative. Grote justly describes the voyage as a "memorable nautical enterprise in Grecian antiquity" (vol. xii. p. 317). It seems to have been the earliest voyage of discovery in the unknown seas of the far East, and amongst savage races, of which any literary record was preserved; and its practical influence on scientific geography was immense. [F. H.]

Arrian : *Indian History*, ch. xviii.-xxiii. E. H. Bunbury : *Hist. of Anc. Geog.* vol. i. ch. xiii. pp. 525-541. W. Vincent : *Commerce and Navigation of the Ancients* (1807), i. 68.

ARISTARCHUS, 280 B.C.

ARISTARCHUS of Samos was one of the principal astronomers of Alexandria, in the generation before Archimedes and Apollonius. One of his works, entitled *Magnitudes and Distances*, has come down to us. In this work a most remarkable attempt was made to calculate the distance of the earth from the sun in terms of the earth's distance from the moon. Aristarchus observed that when the moon was in quadrature—*i.e.* at the moment of half-moon—the observer was in the plane of the circle separating the illumined from the dark portion of the surface. He goes on to maintain that, at this moment, the angle made by lines drawn from the sun and the moon to the earth was 87°. As the angle at the moon of lines drawn from the earth

and the sun was at this time 90°, it followed that the remaining angle of the triangle, the angle at the sun, was 3°. The lunar distance being taken as known, the other sides of the triangle could now be calculated. There was no trigonometry in those days, and the solution of triangles was a cumbrous process; but Aristarchus arrived at the conclusion that the sun's distance from the earth was greater than eighteen lunar distances and less than twenty.

The method followed was strictly scientific; but, in the first place, the difficulty of ascertaining the precise moment of the moon's quadrature was too great for the observers of that time; and a still more serious error was made in estimating the angle made at this moment by the position of the sun and moon as seen from the earth. Since the true value of this angle is not 87°, but more than 89° 50′, the result of the calculation was of course wide of the mark. Nevertheless the attempt was of the highest importance.

Aristarchus sustained the Pythagorean view of the earth's motion, as we know from a letter of Archimedes to King Gelon, in which the following passage occurs :—" You are aware that by most astronomers the universe is looked upon as a sphere, of which the radius reaches from the centre of the earth to the centre of the sun. This view was contested by Aristarchus of Samos, who brought forward hypotheses from which it would follow that the universe is many times as great as that which is now supposed. He imagines the fixed stars and the sun to be motionless. He regards the sphere of the fixed stars to be of such magnitude that the whole orbit of the earth compared with it is a mere point."

Thus Aristarchus anticipated the most serious objection made then and long afterwards to the theory of the earth's annual revolution; namely, that the aspect of the heavens remained the same from every part of the orbit : that there was no annual parallax. [J. H. B.]

Delambre : *Astronomie Ancienne*, i. pp. 75-80. T. L. Heath : *Aristarchus of Samos, the Ancient Copernicus* (1913). *Pos. Pol.* iii. 271.

BEROSUS (*Bar-Oseas*), first half 3rd Century B.C.

BEROSUS, or the son of Osea, was a priest of Bel in Babylon, born in the reign of Alexander the Great (*i.e.* before 323), who wrote in Greek the history of Babylon, about 260 B.C. The history of Berosus gave an elaborate system of early and fabulous chronology; and he seems to have had access to old Babylonian, Chaldean, and Jewish sources. There are marked coincidences between his views and those of the Hebrew Bible, especially as to the Flood. The work is lost; but fragments have been preserved by Josephus and the Christian Fathers, who made much use of his compilation. It was apparently founded on old cuneiform texts.

But the place here assigned to Berosus is due not so much to his historical and chronological labours, of which little positive can be

made, as to his work on astronomy. He is mentioned as one of the earliest astronomers by Vitruvius, Seneca, and Pliny. We are told that he became entirely Hellenised, passed into Greece, where he opened a school in the island of Cos, and had a statue erected to him at Athens, in honour of his extraordinary astronomical predictions. Pliny tells us that his works contained astronomical observations for 480 years, the computation of which possibly began at Babylon in the time of Nabonassar (747 B.C.). It is said that Alexander sent over to Aristotle rough records of eclipses recorded at Babylon for 1903 years.

There were undoubtedly very ancient astronomical records of the phenomena of the heavens kept regularly at Babylon, which, through Berosus, Ptolemy and others, were of immense service to subsequent astronomers (see "Modern Science," § HALLEY). Berosus, we are told, maintained that the moon's rotation on her axis was of the same length as her *synodical* revolution (*i.e.* her revolution with respect to the sun): it is, in fact, equal to her *sidereal* revolution (*i.e.* with respect to the fixed stars). Vitruvius also attributes to Berosus the invention of a hemispherical dial—*hemicyclium excavatum ex quadrato*—which may mean an instrument for taking the sun's altitude at noon. The Babylonians also had in use the gnomon for measuring solstices, and the astronomical water-clock.

Fabulous stories gathered round the name of Berosus, who has been placed in very fanciful epochs; but there is no reason to suppose more than one, the astronomer of the age of Alexander and his successors. Little as we know of him or of his works, Berosus serves to represent the long series of Chaldean observers on whose continuous labours the early growth of astronomy and of chronology was based.

[F. H.]

A. H. Sayce: *Ancient Empires of the East*, ch. ii. p. 101. G. Rawlinson: *Herodotus*, i. pp. 441-450. Delambre: *Astronomie Ancienne*, i. 228.

ERATOSTHENES, b. 276, d. 196 B.C.

ERATOSTHENES was one of the most distinguished men produced by the School of Alexandria. He is regarded by Delambre as the founder of scientific astronomy, on the ground of his alleged institution, in one of the observatories of Alexandria, of armillary spheres, with circles representing the meridian, the equator, and the winter and summer solstice.

The principal achievement of Eratosthenes was his attempt to determine by astronomical observation the dimensions of the planet. His method was perfectly simple and accurate. Taking two points on the earth's surface, lying on the same meridian, and of known distance from each other, he proposed to observe at noon, in each place, the distance of the sun from the zenith. Syene in Upper Egypt and Alexandria were the two points selected. At Syene it was known that at the summer solstice the sun shone into a deep well of that place; in other words, the distance from the zenith was zero. At

Alexandria on the same noon, the distance from the zenith was a fiftieth part of the circumference (*i.e.* 7° 12′). Therefore the distance between Syene and Alexandria, which was regarded by the Alexandrian surveyors as 5000 stadia, was one-fiftieth of the earth's circumference, presuming the earth to be spherical. Syene and Alexandria are not, however, precisely on the same meridian: nor do we know with the least precision the value of the stadium employed. The importance of the calculation lies entirely in the method adopted.

Eratosthenes made a more accurate observation of the distance between the tropics, *i.e.* of the obliquity of the ecliptic, than any of his predecessors. It is commonly said that he fixed it at 47° 42′ 39″. But this is hardly accurate, and is very misleading. The ancients were wholly without instruments enabling them to observe seconds, or even minutes. The circles used at Alexandria were graduated to sixth parts of a degree only. What Eratosthenes found was that the distance between the tropics was to the whole circumference as 11 to 83. Bringing this fraction to parts of 360, all that can be said is that Eratosthenes observed the distance to be either 47° 40′ or 47° 50′: more probably the former. The Greek instruments were far inferior in precision to those used afterwards by Arabians and even Turks. Ulugh Begh, the grandson of Tamerlane, by a gnomon 180 feet in height, determined the obliquity more accurately.

Having thus used astronomy for the purpose of estimating the magnitude of the earth, Eratosthenes set himself to determine by the same method the boundaries of its habitable surface; to use his own words, to correct the old geographical map. He conceived this habitable area as extending from Cape St. Vincent eastwards through the Mediterranean and along the range of the Caucasus to the mouth of the Ganges for 78,000 stadia: about one-third of the earth's circumference. It would be possible, he said, for a vessel starting from Spain westward along the same parallel to reach the Ganges. He constructed a meridian from Alexandria northwards to Rhodes and Byzantium, and so onward to the mouth of the Borysthenes: southwards up the Nile to Meroe, and the land of the Sembritæ (Sennaar). His estimates of longitude were defective, owing to the want of any adequate means of measuring time. Thus the Mediterranean is represented as 26,500 stadia in length, an error of between 600 and 700 miles, which, however, in the maps of the 17th century still remains uncorrected.

Of the discoveries of Eratosthenes, as of those of Aristarchus, Comte remarks that the dependence of climate, of seasons, of day and night, of the division of time, upon conditions of latitude and longitude, gave a shock to the absolute system, by showing that all these, like the direction of gravitating bodies, were relative notions without any arbitrary tendency. [J. H. B.]

Delambre: *Astronomie Ancienne*, vol. i. ch. 7. E. H. Bunbury: *Hist. of Anc. Geog.* vol. i. ch. xvi. pp. 615-666. *Pos. Pol.* iii. 271.

SOSIGENES, fl. 46 B.C.

Of the author of the Reform of the Calendar, under Julius Cæsar in 46 B.C., nothing whatever is known except that he was an astronomer of Egypt. He was doubtless an Alexandrian Greek. When Julius resolved on amending the Roman Calendar, which was now 67 days in advance of the true year, he called in the assistance of the astronomer SOSIGENES. Cæsar was himself a student of astronomy, and had written a treatise which long remained in use. Using his authority as Supreme Pontiff, and as dictator of the Roman world, he accomplished the reform which is still the calendar of the Christian nations. It was substantially the same as that which had been introduced into Egypt by the Ptolemies nearly two centuries before.

The year 46 B.C., Julius made to consist of 445 days: it was called the *year of confusion*; but it was more properly the *last year of confusion*. The reformed year began, not on the 25th of March, but 1st January, 45 B.C. The new year was one of 365 days, with an additional day for every fourth year, in February. The alternate months of the year (January, March, May, July, September, November), were to consist of 31 days: the intervening months were each to be of 30 days (February being 29, except in leap years). This symmetrical arrangement was upset by the vanity of Augustus in 27 B.C., when he gave his own name to the 8th month, then added the day he took from the 9th, and otherwise varied the lengths of the months into their present irregularity.

The Julian year of 365¼ days was too long by 11 minutes 12 seconds. This must have been known to Cæsar and to Sosigenes; as more than 100 years before, it had been proved by Hipparchus, whose calculation was within 4 minutes of the truth. Hipparchus had calculated that the error would amount to a day in 300 years; but it seems that the error is more than double and would amount to a day in 128 years. Cæsar and his astronomer doubtless considered that the secular error might be left to the future to correct. They could hardly anticipate that it would be binding on Western Europe for 16 centuries, and on Eastern Europe for nearly 20 centuries. Yet so it has proved.

The Julian Calendar, as deformed by Augustus, governed Christendom until 1582, when Pope Gregory XIII., by the advice of Lilio and other astronomers, struck out the ten days then in excess, and reformed the Calendar of Julius by an order, that the last year of each century should be leap-year only when it is exactly divisible by 400. That is to say, 3 leap-years are suppressed in every 4 centuries. The years 1700, 1800, 1900 were not leap-years; 2000 will be. England accepted the Gregorian Calendar in 1752, but Russia only recently. The Greek rite still retains the Julian Calendar, in which the error now amounts to 13 days, 1900 A.D. having been counted as a leap-year. [F. H.]

P. Lalitte: *Grands Types*, i. 2, pp. 25-57. C. Merivale: *Romans under the Empire*, vol. ii. ch. xx. Plutarch: *Cæsar*.

PTOLEMY (*Ptolemaios*), fl. 130-160 A.D.

CLAUDIUS PTOLEMÆUS was a native of Egypt. The place of his birth is uncertain. He lived in the neighbourhood of Alexandria, and carried on his astronomical work there during the reigns of Hadrian and Antoninus Pius ; his house being on the raised terrace of a temple of Serapis at Canobus, where pillars were afterwards erected to commemorate his achievements.

His great work, called *Mathematical Syntaxis*, best known by the Arabic form of the Greek word for *greatest* as *Al Magest*, is a complete treatise on astronomy as known to the ancients. It consists of thirteen books, of which the first two treat of the earth as centre of the universe, of the motion of the stellar spheres by which the day, the year, and the precession of the equinoxes is explained ; his table of chords is described and applied ; astronomical time is defined, the dependence of climate on latitude is shown. The third book deals with the theory of the sun; the fourth and fifth with that of the moon; the sixth is given to eclipses ; the seventh and eighth to the stars ; the last five books to the planets.

Ptolemy frequently mentions Hipparchus ; but it has been shown in detail by Delambre and others that he has borrowed from him far more than he has acknowledged. But what remains as his own is of much importance. He discovered the second inequality of the moon's motion called by astronomers evection ; the first inequality, due to the excentric position of the earth in the lunar orbit, and called, as in the case of the sun, the equation of the centre, had been discovered by Hipparchus. Ptolemy found that the equation of the centre was diminished when the moon was in conjunction with or opposition to the sun, and was increased in quadrature, *i.e.* when the angular distance between the moon and sun was 90°. The amount of this inequality depended also on the combination of the places of the lunar apsides with that of the conjunctions. Ptolemy's estimate of this second irregularity was very nearly accurate, and is a discovery of great value.

Ptolemy represented lunar as well as planetary motions by supposing the body considered to move on the circumference of a small circle, the centre of which was carried round the earth ; a mode of representing complicated periodic motions first suggested by Apollonius. By varying the size of the subsidiary circle and the direction of motion, all these irregularities became susceptible of geometrical treatment. The hypothesis was strictly legitimate ; the more so that none but circular arcs were amenable to calculation. A further discovery of vital import to astronomy is due to Ptolemy—that of the refraction of rays of light when passing from a thinner to a denser medium. It is spoken of not in his astronomical work, but in his *Optics*, which therefore must have been written later. Arranging at the extremities of one of the diameters of a circle and at the centre

three coloured spots, so that when the circle was half immersed in water, they appeared to be in a straight line, he was able to determine with precision the refraction for each angle of the incident ray. Applying this to astronomy he shows that refraction, greatest at the horizon, and diminishing as the star approaches the zenith, disappears when the ray is vertical. [J. H. B.]

Delambre : *Astronomie Ancienne*, vol. ii. G. Forbes : *History of Astronomy*. *Pot. Pol.* iii. 274. For Ptolemy as a geographer, see E. H. Bunbury : *Hist. of Anc. Geog.* vol. ii.

ALBATEGNIUS, 900 A.D.

In the ninth century begins the fertile period of Arabian science, protected and encouraged by the Khalifs of Bagdad, especially by Al Mamun, son of Harun-al-Raschid, who spent much time in forming a collection of Greek works on science. Ptolemy's *Syntaxis* was translated in 817 by Isaac ben Honain, and was carefully studied by the astronomers of Bagdad and Damascus. His observations were carefully repeated, but without any marked advance of science till the time of Mohammed ben Geber ALBATANI ; so called from Batan, in Mesopotamia, the place of his birth ; in Western style he is known as *Albategnius*. He was a Syrian prince ; able and willing to spend wealth on costly observatories established at Aracte and also at Antioch. The result of his labours is contained in a treatise on the science of the stars and their motions.

In trigonometry, Albategnius introduced an important innovation—the use of the semi-chord of the double arc for the chords employed by Hipparchus and Ptolemy. This semi-chord was called in Arabic *gib*, *i.e.* pleat or fold, translated into Latin as *sinus* ; such, at least, is the most probable explanation of the word. The introduction of the sine simplified the labour of calculation. Of the other trigonometrical lines, the tangent appears to have been known to him, but not used ; the cosine and secant were of later invention.

In astronomy, Albategnius, repeating with greater accuracy and better instruments the observations recorded by Ptolemy, determined the annual amount of precession as 54″, instead of 36″ ; a very much nearer approximation to the true amount. He discovered also what in Ptolemy's time was unknown—the annual motion of the solar apogee, which he fixed at 25″. His determinations of the eccentricities of the solar orbit, of the obliquity of the ecliptic, and of the length of the year, were superior in accuracy to those of the Greeks. The year as fixed by him was two minutes and a half too short, an error much smaller than that of Hipparchus, and which, when examined, appears to be due to an incorrect, or even fictitious, observation of Ptolemy. [J. H. B.]

Delambre : *Astronomie du Moyen âge*.

NASIR-ED-DIN (*Mohammed Ben Hussein*), b. 1201, d. 1274 A.D.

MOHAMMED, the son of Hussein, Al-Thussi (of Thous), from the place of his birth, was a Persian astronomer of the thirteenth century. He was a favourite of Holagou Khan, grandson of Zingis, the great Mogul who overran Persia, and destroyed the Abbasid dynasty in A.D. 1258 (*Gibbon*, ch. lxiv.). The chief fixed his government at Maragha, where he collected men of science and built an observatory, over which Nasir-ed-Din presided until 1271. He there constructed hydraulic and engineering machines and a variety of improved astronomical instruments, described by Delambre, and collected a fine scientific library.

He also wrote on Philosophy, combining Aristotle with Plato, and made a Persian translation of the *Almagest* of Ptolemy. And he translated into Arabic the *Elements* of Euclid. He compiled a body of *Tables* of astronomical observations, taken over twelve years. They were dedicated to the Mogul Sultan, were known as the *Ilkanic Tables*, and enjoyed a great reputation in the East. He also wrote on geography, determining longitudes and latitudes. [F. H.]

Delambre : *Astron. du Moyen âge*, 196-203. Montucla : *Hist. des Mathém.* vol. i. part ii. bk. 1.

HIPPARCHUS, abt. 150 B.C.

HIPPARCHUS was born at Nicæa in Bithynia, and from his astronomical observations it appears that he was living in the interval 160-125 B.C. His observations appear to have been almost entirely taken from the island of Rhodes. Whatever communication he had with Alexandria, there is no evidence that he resided there.

Of the numerous astronomical memoirs which he is recorded to have written, the only one that is extant is his commentary on the poem of Aratus, recording the observations of Eudoxus. Hipparchus was probably young when he wrote this work : it does not mention any of the discoveries that have made him famous. Pliny, writing in the first century A.D., speaks of him with enthusiasm, as a man whom it was impossible to over-praise, and mentions specially his audacious enterprise of constructing a map of the stars. Ptolemy, in the following century, calls him a laborious searcher after truth, and makes continual references to his results. But in the great historical work of Delambre, it was for the first time shown in detail that Ptolemy had acknowledged but a small instalment of his debt ; and that the immense reputation enjoyed by him through the times of Arabian and mediæval astronomy rested in great part on the discoveries of Hipparchus.

These discoveries are numerous ; but the two most important of them, the institution of Trigonometry and the establishment of the

precession of the equinoxes, are, as Comte has pointed out, intimately connected with each other. He found, by comparing his own observations of the stars with those made 150 years previously by Aristillus and Timocharis, that their positions as measured perpendicular to the equator and parallel with a fixed point in it (*i.e.* their declinations and right ascensions), showed notable variation of an apparently irregular kind. The case altered, however, when the two positions of the star were referred not to the equator, but to the ecliptic. Measured perpendicularly to the ecliptic the position of the star—in other words, its latitude—had not changed; but the measurements parallel to the ecliptic, that is to say its longitude, showed a variation amounting to a degree and a half in the period examined. This remarkable phenomenon was geometrically represented by supposing the intersections of the equator with the ecliptic—in other words, the equinoctial points—to alter their positions yearly in a direction opposite to that of the sun's path. They were said to retrograde, so that the equinoxes occurred every year somewhat earlier than would be the case if they remained stationary. The conversion of declinations and right ascensions into latitudes and longitudes shows that Hipparchus had the power of solving the spherical triangle produced by the intersections of the equator and the ecliptic with a meridian; in a word, that he was acquainted with the principles of spherical trigonometry.

But for the further discoveries of Hipparchus on the solar and lunar motions, plane, as well as spherical, trigonometry was needed. We know from Ptolemy that he constructed in twelve books a table of chords. Archimedes half a century before him had inserted in a circle a rectilinear figure of 96 sides. But far more precision than this was needed if angular magnitude was to be brought within the range of arithmetical computation. Taking the radius of the circle as equivalent to 60 units, each unit further divisible into sixty, and so onwards on the sexagesimal scale, he constructed a table showing the numerical value of all chords. The mode of doing this is fully explained in the *Almagest* of Ptolemy; and it is probable that the method of Hipparchus was similar. It rested on the theorem that, in every four-sided figure inscribed in a circle, the rectangle formed by the diagonals is equal to the two rectangles formed by the opposite sides. Here, then, was an equation between six chords: and, by considering the cases in which some chords were already known, it became possible to calculate the rest. Where one of the diagonals was a diameter, and the other was a perpendicular let fall upon it, the relation between the chord of the arc and the chord of half the arc was not difficult to determine. Knowing already the value of such chords as the diameter, corresponding to the arc of 180°, of the side of the hexagon, which was the chord of 60°, of the chords of 72°, and 36°, the sides respectively of the pentagon and decagon, it now became easy to proceed further by bisection. Ultimately the table included all arcs from half a degree upwards, proceeding by intervals

of half a degree. For intermediate values, the thirtieth part of the chord was added for each minute, as a sufficient approximation.

Plane trigonometry was essential for the researches of Hipparchus into the solar and lunar motions. By previous astronomers it was supposed that the sun's motion in the ecliptic was uniform. Hipparchus observed that from the vernal equinox to the summer solstice $94\frac{1}{2}$ days elapsed; $92\frac{1}{2}$ days from this solstice to the autumnal equinox—a correspondingly shorter time, therefore, in the two periods between autumn and spring. That this estimate of the period from vernal to autumnal equinox was half a day too long is a secondary error due to imperfect instruments. He represented this unequal velocity by supposing the earth placed excentrically in the orbit described by the sun. He valued the degree of this excentricity at one twenty-fourth of the radius, a slightly excessive estimate; and calculated the longitudes of the position at which the sun was nearest to or farthest from the earth (*perigee* and *apogee*). The length of the year from vernal equinox to vernal equinox he estimated, more accurately than before by 5 hours 55 minutes and 12 seconds; the true amount is about 6 minutes less.

The motion of the Moon offered a more difficult problem. The motion of this body is unequal both in latitude and longitude. The points of slowest and quickest movement correspond to all parts of the zodiac in succession. Theocratic astronomers had found that, in a period of 223 intervals between one full moon and the next, eclipses recurred in similar order. By careful observation of eclipses, the only precise mode available for ascertaining the moon's position, and by comparison with former observations, Hipparchus, aided always by his calculus, defined the inclination of the moon's orbit to the ecliptic, the amount of the moon's daily motion in the heavens, the motion of her perigee, and also that of her nodes (intersection of her orbit with the ecliptic).

The result of these investigations was that solar and lunar tables could now be formed, defining with much precision the position of the sun and moon in the heavens on any future day. Astronomy began to approach the ideal goal of all scientific research,—prevision.

The Catalogue of Stars formed by Hipparchus, with the longitude and latitude of each accurately defined, must not be passed over. He was led to this by his early work on the poem of Aratus, in which the position of the stars named is very loosely given. Ptolemy, centuries afterwards, gave his own catalogue, purporting to be the result of independent observations. Closely examined, it proves to be the Catalogue of Hipparchus, with an addition to the longitude of each star of Hipparchus's estimate for precession. This estimate is now known to be too slight: and if Ptolemy had made genuine observations of his own he would have discovered the error.

Hipparchus may be regarded as the founder of scientific astronomy. The note of this science is the combination of precise observation with that power of indirectly measuring magnitudes which

constitutes the science of mathematics. The records of theocratic astronomy could lead at best to empirical laws, from which rude guesses at the future could be made, frequently falsified by the event. The observations of Hipparchus were made with instruments hardly superior to theirs, and falling short a hundredfold of the precision of a modern observatory. But they were made by a great intellect fortified by geometrical science. Hence they reached the aim by which true science is distinguished from historical or literary erudition, the power of accurately forecasting the future.

It should not be forgotten that Hipparchus, continuing the work begun by Pytheas and Eratosthenes, did much in the application of Astronomy to Geography. He constructed parallels of latitude at intervals of about four degrees through the extent of land known, or conceived, as existing on the earth's surface, from the Arctic circle southwards to within 12 degrees of the equator. He also attempted to fix the meridian of the principal cities of the Mediterranean.

[J. H. B.]

Pos. Pol. iii. 270-276, and *Astronomie Populaire*, pp. 127 and 306. Delambre : *Astronomie Ancienne*, vol. i. chap. x. *Hist. of Astronomy* in Library of Useful Knowledge. G. Forbes : *Hist. of Astronomy*.

VARRO (*M. Terentius*), b. 116, d. 28 B.C.

VARRO, called by Cicero and by St. Augustine "the most learned of the Romans," was of an ancient Sabine clan, which had been of consular rank for two centuries. He was ten years senior to Cicero, his intimate friend, who speaks of him always with affection and admiration. Varro was brought up in the old Roman traditions of simple hardihood, and in the best Greek and Latin learning of his age. He served the State on land and sea, was pro-quæstor to Pompey in the wars against the pirates and against Mithridates ; joined the aristocratic party in the civil war, and was Pompey's legate in Spain. On the defeat of the Senatorian party, Varro surrendered to Cæsar, who received him graciously, and appointed him to superintend the formation of a great public library. He never took part in public affairs again ; and, withdrawing into literary seclusion, he succeeded in escaping Anthony's proscription in which he had been included, and died peacefully B.C. 28, in his 89th year.

Varro was the most voluminous as well as the most learned of the Romans, for he had written, he tells us, 490 books ; but the full tale seems to be 620 "books" in 74 works. St. Augustine, who cites and praises him often, and whose own arguments as to the ancient theology are largely founded on Varro (*de Civit. Dei*, vi. vii.), tells us "that he read so much, it was a marvel he had time to write, and wrote more than one can believe any one man could read" (vi. 2). His labours were of the most varied kind, and his vast original

research in all fields made his writings a complete Roman encyclopædia of practical, historical, philological, and theological learning. His most important works, besides satires and essays, are on agriculture, on the Latin language, and on historical antiquities. The three books on Agriculture are a thoroughly practical and exhaustive account of farming, stock-breeding, and husbandry in all its parts, most systematically compiled from personal observation and knowledge. The work on Language, with all its inevitable shortcomings, was the most complete and scientific account which the Romans could give of their own tongue.

But the 41 books of Antiquities—human and divine—were the main work of Varro. We know this almost entirely from St. Augustine, who uses it as a text-book of heathen divinity. The author begins with the origin of man, and then treats of the original people of ancient Italy, and finally gives an account of the origin, early history, and chronology of Rome (of which he determined the foundation in the year B.C. 753), and he discusses the political and social institutions of the city from the earliest times. No scientific work of Roman times would have been to us more truly invaluable. It has entirely perished—there is reason to fear by the fanaticism felt in the early ages of Christianity towards the standard manual of heathen theology. In a rude and confused way, Varro seems to have attempted three things which it was reserved for the later ages of modern science to achieve—(1) the application of concrete science to practical industry, (2) the scientific study of the history of language, (3) a sketch of human evolution from primitive ages under the influence of religious belief. [F. H.]

St. Augustine : *de Civitate Dei*, lib. vi. vii. Mommsen : *Hist. of Rome*, bk. v. ch. xii. *Varro on Farming*, Eng. trans. by L. S. Best (1912).

COLUMELLA (*L. Junius Moderatus*), 1st Century A.D.

Of the most famous and systematic of the Roman writers on husbandry, we know nothing but what we gather from a few scattered remarks in his writings. He was a native of Gades (Cadiz), flourished in the middle of the 1st century, devoted himself to the scientific study of comparative husbandry, and to the practical work of a breeder, horticulturist, and rural economist. He possessed considerable estates, where he experimented on the crossing of stock, and the culture of crops and fruits ; he travelled over Spain, Gaul, Italy, Greece, Asia Minor, and Northern Africa ; and ultimately settled in Rome, where he wrote his great work on Agriculture (*de Re Rustica*). He is the Arthur Young of antiquity.

The subjects treated are—(1) the situation, plan of a farm, and the internal economy of a rural establishment ; (2) the tillage of the soil,

ploughing, manures, sowing, seeds, grain, and grasses ; (3) the culture of fruit trees, especially the vine and the olive ; (4) the breeding of horses, mules, and stock, with an essay on the veterinary art ; (5) of asses, sheep, goats, swine, and dogs ; (6) poultry and fish ; (7) bee-keeping ; (8) on gardening, a book written in evident imitation of Virgil (*Geo.* iv. 148), and composed accordingly in the same dactylic verse. This book, though wanting in poetry, shows a beautiful sense of the delights of the garden. (9) The duties of the bailiff, with a farmer's calendar of seasons and astronomical indications. These appear to be copied from books adapted to the latitude of Athens and Alexandria, rather than drawn from personal observation and practical knowledge ; and the work concludes with (10) receipts for making wine, pickles, and preserves. A further book on *Trees* deals in detail with plantations of forest and fruit trees. The whole is written with much elegance, in a pure style, with an ardent love of country pursuits, and with a noble zeal to turn his countrymen from luxury and frivolous idleness to rural industry and the cultivation of their estates. It is a prose Georgic.

Varro and Columella represent the worthy aspirations of the higher order of ancient Roman chiefs, to organise a rural industry on a sound economic and scientific basis. No other race made any such attempt ; and it is characteristic of the practical nature of the Roman mind, that science amongst them took a concrete and industrial form. The attempt failed, as, in a corrupt, military society based on systematic slavery, it was certain to fail ; and it was premature in the absence of any real physical, chemical, or botanical science. But the spontaneous and rudimentary efforts of the contemporaries of Julius and Augustus, idealised by Virgil, are most interesting, and their failure is pathetic. Scientific agriculture died out in Europe, to be succeeded for 18 centuries by barbarous and empirical habits ; and it is only in the last 100 years that the scientific guidance of the basis of all human industry has at length been seriously achieved. [F. H.]

Columella: *Of Husbandry*, Eng. trans., 1745. Schneider: *Scriptores Rei Rusticæ* 1794. For Columella on the inefficiency of slave labour, see Adam Smith: *Wealth of Nations*, Bk. iii. ch. 2.

VITRUVIUS (*M. Vitruvius Pollio*), 1st Century B.C.

Of the classic authority of Roman Architecture almost nothing is known. His date has been placed under Augustus and under Titus, and the latter supposition has caused him to be misplaced after Columella. But the Emperor to whom he dedicated his treatise is clearly Augustus, and he seems to have written it a little before the Christian era. He was probably born about 76 B.C., a native of Latium, of respectable origin, and received a sound education. He wrote on military engineering, and was appointed by Augustus to a

permanent office as surveyor of engines. He did little in the practice of his profession as architect, in which apparently he had little success. But he devoted the latter half of his life to a systematic treatise *de Architectura*, in which he discussed, with great precision and detail, both the theory and practice of the architect's art. In it he cites and comments on many Greek writers, and treats his own work as a systematic compendium of previous knowledge.

He begins by discussing the education of the architect, the various branches of science which are applied in the art, and the proper distribution of a well-arranged city. He then discusses the proper materials for building, and the methods of working them. He classifies buildings according to the arrangement of the columns, and the various orders. He describes in minute detail the proper proportions and plan of public and of private buildings, the theory of ornamentation, and the materials in use. He then treats of Hydrostatics, of practical astronomy, and mechanics. His science is very much inferior to his practical knowledge of his own art. The work as a whole is the foundation of almost all we know about ancient art, and has had immense popularity and a permanent influence on the practice of architecture. It is characteristic of the Roman genius for social organisation, that in spite of the immeasurable superiority of the Greeks over the Romans, both in artistic ingenuity and in exact science, the development of Architecture to meet the growing needs of civilisation came from Rome and not from Greece. And it is to a Roman and not to a Greek that we owe all our real knowledge of ancient buildings, and from Vitruvius has been derived the whole of the constructive art which in modern Europe is known as Classical Architecture. Bramante, Michael Angelo, Palladio, and other founders of Renaissance architecture were careful students of Vitruvius. [F. H.]

Schneider: *Vitruvius*, 1807. Murini: *Vitruvius*, 1836 (*with plates*). J. Gwilt: English trans. (new ed. 1860). *Encycl. Brit.* article by Professor Middleton. *Vitruvius* (in preparation for Loeb Classics).

STRABO, b. abt. 54 B.C., d. abt. 25 A.D.

The greatest geographer of antiquity flourished during the whole rule of Augustus (22 B.C.—14 A.D.), and the early part of the rule of Tiberius, and his work was not completed until 19 A.D. We know almost nothing of his life.

STRABO was a native of Amasia, in Pontus, probably a Greek by birth, of a family on the mother's side, which held high office under the royal house of Mithridates. He travelled young and had the best education of his time, visited Greece in 29 B.C., and then spent some years in Rome. In 24 B.C. he travelled in Egypt, and went up the Nile. He travelled in Greece, central Italy, the coast of Africa, and in Asia Minor. But he soon afterwards withdrew to his native

town in Pontus, which is now Rumili, and there compiled, almost entirely from Greek sources, his great work on Geography. It remained unknown for a century, and is not mentioned by Pliny. It was not until the third century that the importance of his labours was duly recognised.

The "colossal work" of Strabo has been well described by Humboldt (*Cosmos*, vol. ii. part 2), who says that, though Strabo did not possess the accuracy of Hipparchus or the knowledge of Ptolemy, yet his work "surpasses all the geographical writings of antiquity, both in grandeur of plan and in the abundance and variety of its materials." Sir E. Bunbury says (*History of Ancient Geography*, ii. 330): "If we regard the science of geography in all its branches, no other ancient writer can compare with Strabo." The 17 books of his geography were designed as a complete geography of the habitable world, mathematical, physical, political, and historical. It was not intended as a popular work, as a physical philosophy, nor as a manual or gazetteer. It was designed for statesmen rather than philosophers or men of science, and gives a general picture of the physical, social, and historical conditions of each country. The descriptive and historical side of his work is far better than the mathematical. The purely geographical conceptions are based on those of Hipparchus and Eratosthenes; and in some points show an actual retrogression from the knowledge of the great Alexandrines. There are some ingenious physical hypotheses, amongst them that of other continents—an idea adopted by Seneca in his *Medea*; but Strabo added nothing from the mathematical point of view proper. His conception of the habitable world is very imperfect and faulty; and, though he grossly overrates many distances, he makes the world far too small. With him Ireland is the most northerly point, the Red Sea is the most southerly, and the mouths of the Ganges the eastern limit. This world is a vast island, surrounded by ocean, of which the Caspian and the Persian gulf formed arms—*i.e.* with only about 100 degrees of longitude and about 50 degrees of latitude.

The physical description of countries, especially of those which he had visited, was good, and the immense industry with which he collected accounts of the political and ethnical conditions of countries is invaluable to us. He is not very critical as to his sources, treating Homer as a paramount authority, distrusting Herodotus, and relying mainly on Greek books rather than Roman travellers. But his accounts of the native races of distant lands—and still more of Asia Minor and Egypt, which he knew well—are of the utmost value to the historian. And with all its inevitable imperfections, the *Geography* of Strabo forms a landmark in the history of science as the first serious attempt to found a complete concrete science of the planet on which man is placed. [F. H.]

Strabo: *Geography* in Loeb Classics, 8 vols. (proceeding). Humboldt: *Cosmos*, vol. ii. part ii § 4. E. H. Bunbury: *Hist. of Anc. Geog.* ii. ch. xxi., xxii. (see map of the world acc. to Strabo, ii. 238). J. P. Mahaffy: *The Silver Age of the Greek World*.

FRONTINUS (*Sextus Julius*), d. abt. 106 A.D.

Of the origin and early history of the famous writer on Aqueducts, Sextus Julius FRONTINUS, we know nothing. He was a soldier, governor, and eminent official under the Flavian Cæsars, and under Nerva and Trajan. We first hear of him as Prætor of the city under Vespasian, A.D. 70; and four years later he was probably Consul. He distinguished himself as Governor of Britain by his conquest of the Silures of Wales. By Nerva he was appointed to the high office of Commissioner of the Water Supply of Rome, 97 A.D., and also to the great dignity of Augur, wherein he was succeeded by the younger Pliny. He died apparently about 106 A.D.

Frontinus wrote four books of anecdotes on the art of war; but his principal work is in two books on the *Aqueducts of Rome*, written about 100 A.D. This is an elaborate and exact treatise on the Roman system of aqueducts—a form of civic organisation which they carried to a very high degree of perfection. Strabo, full as he is of Greek prejudices, tells us that the aqueduct was a form of engineering which the Greeks neglected, but which was introduced and carried to perfection by the Romans; and the younger Pliny declares that there was nothing more wonderful in the world than the Claudian Aqueduct, completed under the Emperor Claudius, in 50 A.D. The Greeks, with their moderate cities, mountainous country, and simple municipal organisation, found their water supply in wells and natural springs; and even great cities, such as Alexandria and Syracuse, were supplied by fountains or by canals bringing water from neighbouring rivers. The aqueduct proper is a canal, carried at a high level, and on a gently inclined plane, from a pure supply at a great distance. This is a purely Roman invention, of great antiquity, and of universal application throughout the Roman Empire. It was once imagined that the Romans were ignorant of the art of carrying water by pipes over varying levels. But it is certain that they knew and used this expedient in its proper place. For the enormous volume of water required for the Roman standard of sanitary needs, the aqueduct was indispensable to bring over great distances what was practically a flowing river.

When Frontinus wrote, A.D. 100, nine aqueducts, carried to Rome a supply equal to that of a river 30 feet broad by 6 deep, flowing at the rate of about two miles per hour. Ultimately Rome had fourteen aqueducts; of which three still remain in use, giving the modern city an abundant supply, and the ruins of many others form magnificent objects in the Campagna. The oldest of all was the *Aqua Appia*, built by the famous Censor, Appius Claudius, B.C. 313, more than 400 years before the time of Frontinus. Some of these aqueducts were 40 and even 60 miles in length, and were stupendous constructions. Frontinus says, with just pride, that these vast works of public necessity far surpassed the useless pyramids of Egypt and the famous

but vainglorious monuments of Greece. Great pains were taken by the Romans with the preservation of their aqueducts ; the chief controller was an official of high rank and proved administrative capacity. A body of 460 slaves were employed as workmen on the constant task of repair.

It is a fact of profound significance that the Romans were the only people of antiquity who carried to the highest point this indispensable institution of civic life—the free supply of the purest spring water in unlimited and inexhaustible quantity. And it is perhaps even more suggestive that the same point of perfection, in one of the essential conditions of civilisation, has never yet been reached by any modern people. [F. H.]

Smith : *Dict. Antiquities*, 2nd ed. 1890 § *Aquæductus*. Frontinus: *De Aquis* (in preparation for Loeb Classics).

PLUTARCH (*Ploutarchos*), b. 45-50, d. 110-120 A.D.

We know almost nothing of the life of the author of the most famous of all *Lives*. He was a Greek of Chæroneia, in Bœotia ; and was a youthful student when Nero visited Delphi in 66 A.D. He had an excellent education, and travelled, it is said, in Egypt, where he studied ; and we know that he subsequently visited Italy, and spent some time at Rome, teaching rather than learning. He never became deeply versed in Latin literature, nor intimately acquainted with the Roman Empire and its guiding spirits. PLUTARCH, essentially a Greek provincial man of letters, withdrew to his native town, where he wrote voluminous works, devoted himself to local affairs, to his priesthood of Apollo at Delphi, and to the composition of his famous *Parallel Lives*. His work on Apophthegms is dedicated to the Emperor Trajan, who died A.D. 117. We know no more. The greatest of all biographers did not write his own life.

Although we know so little of the facts of Plutarch's life, we know intimately the character of the man. He was a well-bred, well-trained, well-read, genial, just, and honourable moralist of the old school : somewhat garrulous, sententious, and credulous : but overflowing with interesting anecdote, a consummate master of lifelike portraiture, with a deep foundation of pure, simple, and humane morality. He was an enlightened and pious polytheist, verging on Monotheism of the Neo-Platonic kind ; who, without much sympathy for modern Roman culture, and without much knowledge of the Roman Empire at its highest grandeur, devoted himself to elaborate a spontaneous scheme of practical ethics. His ethical writings, called in Latin *Moralia*, are amongst the most valuable pictures we possess of antique manners and thoughts. But they are surpassed by the *Parallel Lives*, or studies of character of illustrious Greeks and Romans in pairs, from Theseus to his own age. There were in all some 50 Lives, of which 14 are lost, and unfortunately in

that number are those of Epaminondas, Scipio, and the early Cæsars.

Plutarch was not a philosopher, for he had no powers of original thought and very little precision of reasoning ; nor was he a historian, or at all interested in the evolution of civilisation as a whole. He was, as he justly describes himself, a moralist, a student of character ; and his *Lives* are pictures of human nature, not narratives of events. Like Dr. Johnson, in a much later age, Plutarch always turns to the moral and human side of every incident ; he was a great talker, a keen judge of moral actions, and was himself the oracle of a highly cultured society, living apart from the world of affairs towards the latter years of one declining epoch, and profoundly unconscious of the new epoch which was to succeed it. It is significant that Plutarch, a professed student of morality and religion, writing 100 years after Christ, seems never to have heard of Christianity.

It is needless here to describe the *Parallel Lives*, which, in the Positivist Library, follow Herodotus and Thucydides and Tacitus. They have been the subject of famous eulogies from the time of Montaigne and Henry IV. down to that of Rousseau and Madame Roland—when the great moralist of antiquity had a very real part in forming the tone of the Revolutionary movement. The *Lives* appeared in a Latin version in 1470 at Rome ; in Greek, at Florence, in 1517 ; in French, by Amyot, in 1559 ; in English, by North, in 1579. The latter was used by Shakespeare as his text-book for *Coriolanus*, *Julius Cæsar*, and *Antony and Cleopatra*. It has been said, and it is hardly an exaggeration, that if all other record of antiquity but Plutarch's were lost, we could still conceive by his aid the general spirit of those ages. And it has often been declared that if we could save but one book in the world, the most valuable to preserve would be this unique record of antiquity as a whole.

Although modern pedantry has turned much of late from the slip-shod Greek and the uncritical garrulity of the great anecdote-monger, it may be said still that no known book, not being a work of devotion or of imagination, has ever exerted so great an influence in forming the ideas of generations, or has ever been so well and universally read. Though not a work of history nor of philosophy, Plutarch's *Lives* still remain for the general public the source of all practical knowledge of the genius of antiquity. His pictures of human nature under military civilisation are as immortal as those of Shakespeare and Scott under mediæval and modern manners. That Comte places Plutarch not beside Cicero, the younger Pliny, and Epictetus, nor yet with Thucydides, Herodotus, and Polybius, but beside Varro, Strabo, and the elder Pliny, points to the fact that Plutarch collects, in a spontaneous manner, the rudiments of an ethical science in a purely empirical way. [F. H.]

Plutarch: *The Parallel Lives*, Eng. trans. by A. Stewart and G. Long (4 vols.); in *Loeb Classics*, 11 vols. proceeding; also Dryden's trans. revised in *Everyman's Lib.* (3 vols.); *Morals*, Eng. trans. by C. W. King and A. R. Shilleto; R. C. Trench: *Plutarch: His Life, his Lives, and his Morals*. T. P. Mahaffy: *The Silver Age of the Greek World*.

PLINY THE ELDER, b. 23, d. 79 A.D.

CAIUS PLINIUS SECUNDUS was born of a wealthy provincial family, either at Verona or at Comum (Como), in 23 A.D. He had an excellent education, came early to Rome, and was soon introduced to civil and military office. He commanded a troop of cavalry in Germany, saw service in Africa and in Gaul, was for some time governor in Spain, and at the time of his death was in command of a fleet at Misenum. He perished of suffocation in the eruption of Vesuvius, 79 A.D., drawn, by insatiable curiosity, to the scene of the great convulsion. He was an intimate friend of the Emperor Vespasian and his son Titus, to whom the *Natural History* is dedicated. It was published 77 A.D., when its author was 54.

Although we know only a few facts of the life of Pliny, we know the man intimately from the beautiful letters of his nephew, C. Plinius Cæcilius. They paint him as a man of estimable character, of generous, wise, and tranquil spirit, of fabulous industry, and of indomitable energy. He is one of the highest types of the supremely busy, cultivated, self-reliant, and many-sided natures who showed such splendid material and intellectual civilisation in the early ages of the Roman Empire. By its moral corruption and social rottenness Pliny was not more disturbed than were other leading men of his age.

Pliny's great work, *Naturalis Historia*, or *Survey of Nature*, was a general view of all that was known of the physical constitution of the world, with all its contents, mineral, vegetable, animal, and human. He himself calls it an *Encyclopædia* ; a term he first made familiar ; and, as he justly boasts, he was the first in Greece or Rome to undertake the task. It was the result of almost superhuman energy ; for, notwithstanding his active service on civil and military duty, and incessant labours, forensic and official, he published, at the age of 54, what has been justly called an astounding monument of industry. He laboured, as his nephew tells us, night and day, rose habitually at midnight, and whether at the bath, at meals, or on a journey, he was incessantly listening to books read to him, or dictating extracts and notes. He said the Emperor claimed his days, but he could dispose of his nights. We are assured that he collected 20,000 extracts from 2000 works. And thus his *Encyclopædia*, says Humboldt, surpasses, in the richness of its contents, any other production of antiquity ; it is, as his nephew says, *nec minus varium quam ipsa Natura* : "as manifold as Nature herself."

It would be in vain to ask for success in an undertaking so manifestly premature. Without any science but Mathematics and Astronomy, and those far from complete, it was utterly impossible to construct even a provisional synthesis of the physical world. Pliny was neither philosopher, nor acute thinker, nor even accurate observer. He was not even a careful compiler, and he was entirely without critical judgment. But he aimed at results less profound than those

achieved by Aristotle or Hipparchus. He attempted only a vast encyclopædia of literary information on the physical phenomena of the world. It was confined to concrete knowledge, and it did not purport to be original research. And such was his industry, and such his enthusiasm to reach some co-ordination of man's practical knowledge of this world, that his work, though not one of philosophy or discovery, was the most valuable contribution to science between the great age of the Alexandrian Museum and the dawn of modern science with Roger Bacon and Copernicus. It served as a provisional scheme of the correlations of physical Nature.

It is needless to dilate on the shortcomings of Pliny as observer and thinker. He has been severely criticised by Cuvier (*Biogr. Universelle*) and by Humboldt. His work has been compared to that of Buffon and also to that of Humboldt. But both of these were original observers, and one at least was a great thinker. Pliny was essentially a compiler. Still, there are two qualities in his work which give it a very high place. The first is the vast mass of recorded observation and reflection which he has preserved from oblivion ; so that there are whole fields of ancient science, both abstract and concrete, the results of which are only known to us through Pliny. The second great quality of his work is the definite conception of the unity of Nature and the interdependence of the sciences. This conception of his—vastly inferior as it is to the truly philosophic synthesis of Aristotle, and though Pliny in his passion for miscellaneous information seems often to stray from it himself—breaks out again and again in striking thoughts, which seem to anticipate the spirit of positive science. Buffon, in his first discourse, has given us a fine estimate of Pliny, who, he says, " not only knew all that could be known in his age, but had that gift of looking at things on a grand scale which doubles the power of science. He inspires the reader with a breadth of view and a boldness of thought which is the root of philosophy."

In religious philosophy, Pliny was a scientific Pantheist ; indeed he would now be called an Agnostic materialist. His work opens (bk. ii. § 1) with a passage of singular eloquence. " It is reasonable to hold this World, and the environment around it, whereon all things exist, to be the Deity : eternal, boundless, without beginning, and without end. To speculate on what is beyond this World of ours is no business of man, and is beyond the powers of the human mind. It is sacred, eternal, immeasurable, complete in its totality, or rather is itself totality "—and so forth, in a vein almost similar to Hegel. He then discusses, or rather declines to speculate on, the nature of the Supreme Being, in the language of modern Pantheism.

There is a fine sentence in his opening chapter on Man (bk. vii. § 1) —which Humboldt has taken as the motto of his *Cosmos*—" We should be constantly losing sight of the power and majesty of Nature if we persist in studying it in detail without a conception of its unity." But perhaps the finest thought in Pliny—an aphorism

which may well stand for the last word of Ancient Science—is the immortal phrase: "*Deus est mortali juvare mortalem, et hæc ad æternam gloriam via. Hac proceres iere Romani*" ("God means—Man giving succour to man: this is the way that leads to glory everlasting. It has been trodden by the chiefs of Rome"). The idea reminds us of Diderot and his fellow-Encyclopædists, whom Pliny, in rudimentary and empirical form, often suggests, although the encyclopædia of Pliny, unlike that of Aristotle or of Diderot, ignored the moral, social, and historical facts of humanity, and took small account of scientific precision at all. It is supremely interesting to see how near the great Romans of the early Empire came to the conception of Humanity as the dominant ideal of human life, at the very time when the appalling corruption of society around them was preparing for the ruin of the entire material and intellectual fabric in which they felt so much just pride. [F. H.]

Plinius: *Naturalis Historia*, libri xxxvii., ed. Sillig, 1851; French trans., 1829; Eng. trans., 1855, also in preparation for Loeb Classics. Humboldt: *Cosmos*, vol. ii. pt. ii. § 4. E. H. Bunbury: *Hist. of Anc. Geog.*, ii. xxiv. pp. 371-443. C. Merivale: *Romans under the Empire*, vol. vii. ch. xiv.

MILITARY CIVILISATION.

THE Fifth Month commemorates the warriors and statesmen of Greece, Rome, and Carthage, the three principal forms of Military Civilisation. All three possessed that civic life and political organisation which distinguished the West from the East, and which (as the contrast between Carthage and Persia, between Magyar and Hindu, decisively proves) was entirely unconnected with primitive racial peculiarities. Ancient Europe was covered with innumerable petty States, all organised with a view to war, and each driven, not so much by ambition as by a desire for security, to scheme incessantly for the conquest of its neighbours. If this turmoil was ever to cease, and industrial civilisation to arise, it was absolutely necessary that some one of these States should once for all conquer and incorporate the rest. Such incorporation involved evils of its own, and therefore could only continue till the greater evils which it was to remedy had been overcome. The Roman Empire for the first time gave an example of widespread and long-continued Peace. It implanted in the peoples of the West the sentiment of a certain unity which has never since been lost. It communicated to all of them the Græco-Roman culture. It made a Universal Religion possible. When this threefold work had been sufficiently accomplished the temporary political unity came to an end naturally and for ever.

Greece was inferior to her two rivals in the greater political and military qualities, and fell behind them in the mighty competition for the glorious office of incorporating the progressive nations. Civic institutions she developed in great variety and intensity, but on a strictly limited scale. Her military history is a long record of unsurpassed courage, discipline, and skill ; but, except in the instances to be mentioned presently, it is marked by pettiness of aim and nullity of result. Nevertheless in a survey of the continuous progress of Humanity, even in its political aspect, she necessarily divides our attention with Rome, to the almost entire exclusion of Carthage. Carthage was inferior to Rome alone in capacity for conquest and incorporation, and was destined, as far as we can see, to achieve that work if it had been possible for Hannibal to win in the mighty duel. But it was not possible. The qualifications of Rome were decisively superior, and from the nature of the struggle the Carthaginian civilisation was clean wiped out, leaving behind it no appreciable influence on the Western movement. Therefore its great statesmen and warriors

must needs have been omitted from the Calendar, even if their memory had not almost entirely perished.

Greece, unlike Carthage, is, sociologically speaking, in the direct line of ancestry of the modern West. Her political and military achievements are not comparable to those of Rome. But there are two periods during which they possess a capital and permanent importance ; those of the repulse of Persia and the conquest of Persia, commemorated in the weeks of Themistocles and Alexander. To the first we owe it that the intellectual movement was not strangled at its birth by a degenerate theocracy. To the second are due the spread of Greek culture over the Eastern portion of the ancient world, and the subsequent severance of Christianity into two distinct types—a severance which has continued down to our own day to be a fact of the first magnitude in European politics.

The third and fourth weeks are allotted to the Aristocratic and Imperial phases of Roman civilisation ; the Regal or more Theocratic phase having been represented under the month Moses. The Revolutionary period, notwithstanding its brilliant personages, in such striking contrast with the mediocrity of the Aristocratic phase, naturally furnishes no types to the Calendar except Marius and the Gracchi, who stood on its threshold and were far from being pure destructives. [E. S. B.]

W. Warde Fowler: *The City State of the Greeks and Romans.* J. B. Bury: *A History of Greece to the Death of Alexander the Great.* E. S. Shuckburgh: *Greece from the Coming of the Hellenes to A.D.* 14. J. B. Bury: *Rome* (Home Univ. Lib.). Mommsen: *The Hist. of Rome* (Eng. trans. by W. P. Dickson, 5 vols.). J. B. Bury: *A Hist. of the Roman Empire* (to the death of Marcus Aurelius). Gibbon: *The Decline and Fall of the Roman Empire.*

CÆSAR (*Caius Julius Cæsar*), b. 100 (102 ?), d. 44 B.C.

Rome solved the great political problem of the ancient world in the best practicable if not in the best conceivable way. To CÆSAR it fell to put the crowning stroke to that work. The several States of modern Europe have all contributed, though in different degrees, to political progress ; and therefore no one of them has the unique importance and glory that belongs to Rome. For the same reason, no modern statesman stands on a level with Cæsar. He remains in Shakespeare's phrase " the foremost man of all this world." It was the high fortune of Rome that, in the principal crisis of her history, she possessed a citizen so splendidly endowed in intellect, character, and heart. Free to an extraordinary degree from the prejudices belonging to his age and country, with piercing and far-sweeping vision he saw as from some superior height the political situation of his own time in its relation to the past and the future of the ancient world. If Rome had till then carried out the work of conquest with considerable method and upon the whole with steadiness, she had very inadequately satisfied the need for incorporation. Her oligarchical constitution, admirably adapted for the first task, could not

easily reconcile itself to the second. In its best days, and while Carthage and Macedon were still formidable, the Senate had from time to time prudently though grudgingly extended the privilege of citizenship to some of the subject Italian States. But the great mass of Italians had only extorted it by rebellion during the boyhood of Cæsar, and outside Italy the conquered nations were still on the footing of subject allies, trampled upon and fleeced for the benefit of Rome, or rather of the Roman nobles and capitalists. If the great dominion was to be maintained in some tolerable degree of well-being for all its members, or even maintained at all, it was absolutely necessary that the so-called Republican constitution, always oppressive for the provinces and now shamefully corrupt, should be replaced by personal government. For a complete incorporation of the subject-peoples was not to be expected from the suffrages of a dominant people, to even the poorest of whom it would mean the cessation of highly-prized privileges and immunities. The provinces would from the earliest moment of their subjection have welcomed such a change. The time was more than ripe for it when the Roman world lay at the feet of Sulla. Sulla had all the ability, self-reliance, prestige, and opportunity that were needed. But his moral nature was below the task. He had neither the insight nor the sympathy nor the noble ambition of Cæsar, and he preferred to re-establish the senatorial oligarchy.

When Sulla crushed the Marian party Cæsar had just arrived at manhood. Though of an old patrician house he had yet a family connection with the democratic party, Marius having married his aunt. He himself had married a daughter of the democratic leader Cinna, and for refusing to divorce her he was proscribed by Sulla, but managed to keep in hiding till the storm was past. After the death of the great reactionist (B.C. 78), he seized every opportunity of reviving the spirit of the popular party; as, for instance, by publicly honouring the memory of Marius, bringing to justice murderers of the proscription, and courageously raising his single voice in the Senate against the illegal execution of Catiline's partisans (B.C. 63). Clearly seeing the necessity for personal government, at a time when his own services and distinctions were not such as to entitle him to aspire to it, Cæsar did his best to secure it for Pompey, then far the foremost man in Rome, by strenuously supporting measures which virtually placed the empire at his absolute disposal for an indefinite period. A fairly good soldier, but a most vain, unreliable, and incompetent statesman, Pompey after five years let these powers slip through his hands.

Cæsar was by this time thirty-eight (B.C. 62). He had steadily risen in influence and official rank; and it was, no doubt, now that he determined to take the great task into his own hands. He was the recognised chief of the popular party, which aimed at concentrating Republican government in the hands of a single person as the only means of bridling the oligarchy. But this was not to be accomplished

merely by popular votes, as many a democratic leader had found to his cost. Cæsar needed an army and a military reputation, and with rare patience he set himself to acquire both. By a coalition with Pompey—now obliged to treat him as an equal—he obtained the Consulship (B.C. 59), which on its expiration entitled him to a great military command.

Roman generals had of late preferred to extend their conquests eastward, and to win comparatively easy and lucrative triumphs in Asia, over peoples who had possessed for long ages a type of civilisation suited to them, and who therefore could never thoroughly assimilate Western manners and institutions. All this time Gaul, lying at the gates of Italy, was neglected (only the district between the Cevennes and the Alps having been reduced), because the people were more warlike and less booty was to be gained. Yet till that conquest should be effected Rome's work of civilising the world was standing still ; nay, it was always menaced by northern invasions. This field of action, then, Cæsar marked out for himself, in which he could prepare the means for assuming power at home, and at the same time render the highest service to his country and humanity. His ardent spirit, his incredible energy in all circumstances of his life, astonished his contemporaries. Time pressed, for he was no longer young. While he was absent from Rome, what revolutions might not mar his plans ! Yet ten continuous years did he devote to this great task, which, if he had achieved nothing else, would make his name one of the greatest in history. In those ten years he conquered Gaul from the Pyrenees to the Rhine and the British Channel ; conquered her so thoroughly, and treated her so sensibly, that when the fierce struggle was over she frankly and even proudly accepted her new position. The culture, the institutions, even the language of the victors, were eagerly adopted. The grandsons of the men who had fought so gallantly against Cæsar won full citizenship, took their seats in the Senate, and commanded Roman armies.

These ten years decided the future of the West, and therefore of Humanity. It is not merely the central position and natural advantages of France, nor yet the admirable qualities of her people, which have made her throughout mediæval and modern history the foremost of European States. It is even more the result of her rapid and thorough acceptance of Roman civilisation. This made her the heir of Rome. This enabled her long afterwards to Romanise Germany and England in some degree, and as it were at second-hand, by the arms of Charlemagne and William.

It had been arranged between Cæsar and Pompey that, during the absence of the former in Gaul, the latter should act with the popular party, and keep the nobility in the condition of impotence to which it had been reduced in the consulship of Cæsar. Partly from jealousy of Cæsar, partly from sheer incapacity, Pompey after much vacillation and duplicity finally allied himself with the nobles, thinking with their aid to crush his rival and thereafter to be supreme. The nobles,

for their part, thought they would know how to deal with Pompey if once Cæsar was out of the way. In the negotiations which preceded the civil war, Cæsar showed a moderation and fairness in striking contrast with the unscrupulous and headstrong violence of the nobles, who had not even formal legality on their side. But when he was finally summoned to hand over his province and army to a nominee of the Senate on pain of being declared a public enemy, and when the tribunes who had vetoed the resolution of the Senate were obliged to fly for their lives to his camp, he suddenly crossed the river Rubicon, the boundary of his province, and marched on Rome (B.C. 49).

He had but one legion with him ; the bulk of his army was far away in its Gallic cantonments. The forces of Pompey were overwhelmingly superior in numbers. But the rapid and daring advance of Cæsar prevented their concentration. He came, not merely the adored general of a veteran army, but the long-tried and consistent leader of the liberal party, who had never swerved from his principles, never betrayed his friends, never flinched from danger. Fascinated by his success and encouraged by his clemency, towns everywhere opened their gates and Pompeian levies joined him, swelling his army at every stage as he swept down Italy.

Pompey, for his part, was not sorry to have a pretext for moving eastward towards the scene of his early triumphs, where his military prestige and his personal influence would cause all the client States to rally round him, and the sulky and suspicious nobles would find themselves overshadowed. So he crossed the Adriatic, leaving the large veteran army in Spain, which was under his orders, to take care of itself. Thither Cæsar proceeded as soon as he had secured Italy, bent on making sure of the West before doing anything else. When the Spanish legions were beaten, he lost no time in following Pompey, who had found the respite all too short for drilling his large but raw force of Romans, and organising the masses of Asiatics whom he had summoned to his standard. In the campaign that ensued the conqueror of the East fully maintained his old military reputation ; but at length, driven by the clamour of the nobles to risk a pitched battle, he suffered a crushing defeat on the field of Pharsalia (B.C. 48). Flying to Egypt, still an independent kingdom, he was assassinated by order of the government.

The beaten party rallied again, first in Africa, then in Spain ; and of the three years and nine months of life that remained to Cæsar, much the greater portion was spent at the head of his army. He, therefore, had not time to give any complete organisation to his new government. But his intentions are clearly discernible in outline. Supreme power, legislative as well as executive, was to be vested in a single ruler, governing not by divine right but as the representative of the community and in its interest. This was indeed an ideal by no means novel to Romans. Scipio had brooded over it. C. Gracchus had for a moment realised it. The oldest institutions and traditions

told of it. It was the power of the ancient kings theoretically continued to, and in grave emergencies actually exercised by, the magistrates of the Republic during its best days. It had been increasingly overshadowed by the Senate. That body was now to be reduced to its original consultative office. The functions of the executive had been gradually divided among several magistrates. They were now to be re-concentrated. Above all, annual election—the cherished institution of all oligarchies, open or disguised—was to be replaced by life-tenure, with power to name a successor. The subjects of Rome were to be admitted to citizenship, wherever and whenever fit for it; and there is reason to believe that Cæsar intended to move much faster in this direction than his successor did. Rome itself, from the mistress of the Empire, was to become its capital and most dignified municipality. All old parties—Cæsar's own included—were to consider themselves at an end. "To the victors the spoils!" was a cry rebuked from the first. For the vanquished of Pharsalia there was not only amnesty but admission to the highest grades of the public service, if they would bury their old grudge and recognise the government. Pauperism among the lower classes and insolvency among the upper—ulcers not admitting of a radical cure—were treated with judicious palliatives. Taxation was reduced; expenditure was increased; and yet the balance in the treasury at Cæsar's death was tenfold what it had ever been before—a proof of the frightful waste and corruption from which the Roman world was rescued by the overthrow of the oligarchy.

Of the administrative work of Cæsar it is impossible here to give any adequate idea. A reform of the Calendar, which served the West till 1582 and Russia till the recent Revolution; a recasting of the whole provincial administration; a codification of Roman law; a census of the empire; a uniform gold coinage; a public library; a metropolitan police; building regulations; sanitary regulations; an alteration of the course of the Tiber, which would have drained the marshes—all these grand projects, and more, some carried to completion, some only sketched out, teemed from the creative brain of the great organiser in the brief moments he could spare from military cares in these last months of his life—a devouring activity, an all-embracing capacity such as perhaps never shone forth in man before or since. What Roman incorporation meant for the ancient world was at last revealed. The war havoc of seven centuries had found its justification.

In the midst of this glorious and beneficent career, at the age of 55 (57 ?) Cæsar, whose frank and fearless spirit disdained suspicion or precaution, was assassinated by a knot of rancorous, perfidious aristocrats, whom he had pardoned and promoted. Their purblind spite was powerless to avert the inevitable advent of monocracy. What they did effectually extinguish for more than a century was the possibility of amnesty, conciliation, and mutual confidence. Careless as usual of historical truth, the great English poet has

glorified the murderers of Cæsar. Dante, never forgetting the moral responsibility of art, has reserved the lowest circle of hell for Brutus, Cassius, and Judas Iscariot.

It imports little to the greatness of such a one as Cæsar to add that in an age of oratory he stood in the first rank of orators ; that his historical writings are an unrivalled model of vigour, lucidity, and elegance ; that he had carried his scientific culture to a point very unusual among his countrymen ; and that his personal prowess and feats of endurance were the admiration of veteran soldiers. Women loved him, and he loved them. His standard of morality in this respect could not be ours. It was that of his time. Enjoying life thoroughly, he was temperate in all things. To no man has it been given to approach more nearly to the perfection of human nature—complete, evenly balanced, and self-controlled. There is an admirable bust of him in the British Museum. [E. S. B.]

Cæsar : *Commentaries* (in Loeb Classics). Suetonius and Plutarch : *Cæsar*. W. Warde Fowler : *Julius Cæsar*. P. Laffitte : *Grands Types*, ii. 17. Cicero : in numberless places. Mommsen : *Hist. of Rome*, vol. iv. E. S. Beesly : *Catiline, Clodius, and Tiberius*. *Pos. Pol.* iii. 327-329. Cæsar's *Commentaries on the Gallic and Civil Wars* are in the Positivist Library.

MILTIADES, b. abt. 540, d. 489 B.C.

The name of MILTIADES records the first great victory of the West over the East ; and represents the vanguard of the military civilisation which first checked and finally absorbed the theocracies of Central Asia.

Miltiades, a noble Athenian, of the race of the Homeric heroes, had joined, as ruler of a Greek colony in Thrace, in the Scythian expedition of Darius ; and his conspiracy to induce the Greek feudatories to destroy the bridge over the Danube showed how dangerous to the Great King Greece had become. When Darius resolved to crush the rising power of Athens, it was her fortune to find amongst her citizens a chief who, with long experience as a ruler, had seen war on a great scale, and knew the weakness and strength of Asia. Miltiades, retreating to Athens before the storm, was named general in the first great struggle, and became, next to Themistocles himself, the soul of the audacious defiance with which Athens braved the mighty Empire of Persia. To his personal ascendancy and consummate strategy were due the plan of the campaign, the victory of Marathon, and the repulse of the invaders from Attica (B.C. 490). Failing next year in the new expedition which he had promoted, he was impeached and condemned ; and, dying of his wound in prison, he points the moral of the instability of popular favour, a difficulty which weighted all the great men of republican Greece.

The battle of Marathon, though second in importance to Salamis, profoundly impressed the imagination of Greece and of all antiquity. It is probable that about 10,000 fully armed Athenians took part in

it, and about 50,000 Persians. But the battle tested the highest qualities both of commander and soldiers. There, as Demosthenes and Thucydides say, the Athenians "bore the first brunt of the danger," and were "the first to face the look of the terrible Mede." This victory first inspired them with a sense of their own destiny. Aristides, Themistocles, and the poet Æschylus had important parts in it. The 192 citizens who fell were by special decree buried on the field, and the monumental mound raised over them may still be seen. Seven centuries afterwards they were worshipped as heroes on the spot; the day was still kept as a festival in Attica; and men heard at night the battle-field resound with the din of arms. [F. H.]

Herodotus: vol. vi. ch. cii. *Rawlinson's Trans.* iii. 480 (Notes and App.). Plutarch: *Aristides* and *Cimon*. As to the "sublime day" of Marathon, and "the admirable leadership" of Miltiades, see *Phil. Pos.* v. p. 178. *Pos. Pol.* iii. 230-232.

LEONIDAS, d. 480 B.C.

Sparta was the most purely military state of antiquity. All public and even private life was organised and disciplined to the sole end of war. Family duties and affections were almost obliterated by the exaggerated preponderance of the State. All citizens fit for war lived permanently in barracks, and fed at a common mess, the austere simplicity of which has become proverbial. There was daily and laborious drill even for the middle-aged men. No full citizen ever demeaned himself to industry of any kind. This he left to his serfs called Helots. In an age and environment all astir with revolutionary growth, Sparta was the representative of steady, unchanging conservatism. Her government, although virtually an oligarchy, still remained in form a monarchy of the old Homeric type. Art, science, and philosophy found no more encouragement than they did in early Rome. In fact, as far as regards mere militarism, the Spartans were more Roman than the Romans. But of conquest and incorporation they proved as incapable as any other Greek State. Hence Comte calls them "Romains avortés."

At the time of the Persian invasions the other Greek States looked to Sparta to lead the resistance, a duty which she discharged in such a dilatory, unintelligent, and selfish fashion, that the chief honour and advantage of the victory remained with democratic Athens. She was too late for Marathon. She had little to do with Salamis. At Platæa she bore her share and no more. It is characteristic that the one episode of the struggle which was peculiarly her own, and where she won imperishable glory, was a defeat. The enormous host of Xerxes met with no opposition till it reached the narrow pass of Thermopylæ. There it found its way blocked by the confederate Greeks commanded by LEONIDAS, King of Sparta. For two days the assaults of the Persians were hurled back with heavy slaughter by the better-disciplined and better-armed Greeks; but on the third the

betrayal of a path over the mountains exposed the defenders to be taken in the rear. Finding that he was about to be surrounded, Leonidas dismissed all his army, except his own contingent of three hundred Spartans, whose national discipline required them to die at their post. However briefly this story be told, it would be wrong not to record that the Thespian contingent remained with them and shared their fate. When the last battle began the devoted band charged into the thick of the enemy inflicting prodigious slaughter. Leonidas fell, and round his body the combat long raged. There two brothers of Xerxes fell fighting gallantly. While their arms lasted the Greeks kept their swarming enemies at bay. At last, their spears being broken, they retired to a hillock and sat down round the body of their king, exposed to a shower of missiles. There they perished to a man, defending themselves to the last against all who approached, with daggers, hands, and teeth. Six centuries later the names of the three hundred could still be read on a column at Sparta. A monument on the field bore the simple inscription: "Stranger, tell the Lacedæmonians that we lie here in obedience to their orders." [E. S. B.]

Herodotus: vii. 204-224. Grote: *Hist. of Greece*, part ii. ch. xl. Curtius: *Hist. of Greece*, bk. iii. ch. i. *Pos. Pol.* iii. 232.

ARISTIDES, d. abt. 468 B.C.

Though democratic tendencies steadily grew at Athens, she was at no time without her conservative party. At the time of the Persian war it was still strong, and its leader was ARISTIDES, surnamed "The Just." He was one of the ten generals at Marathon, and set the example of giving up his turn of command to Miltiades. His energetic opposition to the innovating policy of Themistocles, and particularly to his development of the navy—which increased the importance of the poorer citizens—led to his ostracism seven years after Marathon. It is said that an illiterate citizen, not knowing him, asked him to write the name of Aristides for him on his voting tablet. "Has Aristides ever injured you?" "No, nor do I even know him; but it vexes me to hear him called 'the Just.'" Aristides without further reply wrote his name. When Xerxes was marching on Athens Themistocles carried a decree of amnesty for all exiles, and especially for his great opponent. Returning on the eve of Salamis, Aristides, at great risk, made his way through the Persian fleet, and it was he who brought the news to the assembled admirals that they were surrounded. He distinguished himself highly in the battle. Next year he commanded the Athenian contingent at the crowning victory of Platæa. The contrast between his character and that of the haughty and corrupt Spartan admiral, Pausanias, determined the maritime States to make Athens their leader in the war which they continued to wage against Persia, and he was unanimously appointed

to fix the contributions to the common fund. It speaks highly for his patriotism and good sense, that he frankly accepted all the democratic changes that had been carried by Themistocles, and even developed them further. Dying in honest poverty, he was buried at the public expense, and such was the respect of the Athenians for his probity—a rare virtue among Greek politicians—that his descendants long continued to receive pensions fron the State.

[E. S. B.]

Plutarch and Cornelius Nepos: *Aristides*. Grote: *History of Greece*, part ii. ch. xxxvi., xxxix., and xliv.

CIMON, d. 449 B.C.

CIMON, son of Miltiades, the victor of Marathon, served as a young man in the war against Xerxes, and in after life commanded in most of those expeditions which weakened Persia and prevented her from resuming the aggressive against Greece. An aristocrat by birth, and opulent, he became the head of the conservative party at Athens, and strove to direct the warlike energy of his countrymen against Persia rather than against the Lacedæmonians, with whom, as the champions of oligarchy and old-fashioned ways, he had a natural sympathy. Greece was now virtually divided between the Lacedæmonian and the Athenian confederacies; but though there was much jealousy and suspicion, open war did not break out till twenty-two years after the expulsion of the Persians. This was largely due to the influence of Cimon. When the Helots revolted, the democratic party, headed by the great Pericles, urged that the opportunity should be seized for attacking Sparta. Cimon, on the contrary, appealed to his countrymen "not to see Greece lamed and Athens drawing without her yoke-fellow." This generous sentiment prevailed, and Cimon was sent with an army to the assistance of Sparta. The suspicious Lacedæmonians, however, soon rudely sent it back (B.C. 461). This insult led to the exile of Cimon as a partisan of Sparta and eventually to war. But five years later, when the irritation had cooled down, it was recognised that he was a thoroughly honest and patriotic man, and he was recalled. Towards the close of his life he had the satisfaction of negotiating a peace with Sparta, and commanding a new expedition against Persia. While engaged in this he died of disease. Though an aristocrat and wealthy he was generally popular, being affable and munificent both by disposition and from policy. For in Athens, where political and social equality was carried further than in any other country ancient or modern, the possessors of wealth found it advisable to use it in a public-spirited way.

[E. S. B.]

Plutarch and Cornelius Nepos: *Cimon*. Grote: *Hist. of Greece*, part ii. ch. xliv. xlv

XENOPHON, b. abt. 444, d. abt. 354 B.C.

XENOPHON was a pupil and friend of Socrates, who saved his life at the rout of Delium, by carrying him on his back from the field more than a mile. His account of the life and teaching of his revered master is the most valuable and trustworthy that we possess (*Memorabilia*). He was the editor and continuator of Thucydides; and his miscellaneous writings, of which many remain to us, throw great light on the history and manners of his time. They show that he was not a man of first-rate intellectual or even literary power; but their style is simple and pleasing, and they leave a very favourable impression of his character. We are concerned with him here not as a writer but as a man of action. Three years after the taking of Athens by the Lacedæmonians, Cyrus the Younger, a prince of remarkable capacity, who had formed the design of employing Greek soldiers and functionaries, and to some extent Greek methods, in the government of Asia, marched up from his satrapy on the sea-coast to dethrone his brother Artaxerxes, taking with him 10,000 Greek adventurers, among them Xenophon. When Cyrus fell at the battle of Cunaxa, near Babylon, Xenophon had a principal share in conducting the famous Retreat of the Ten Thousand through regions never before traversed by Greeks to the coast of the Euxine (B.C. 400). His narrative of this wonderful march first revealed to Greece the internal rottenness of the Persian Empire, and led to other attacks upon it, culminating seventy years later in the decisive expedition of Alexander. Xenophon was a conservative and a disciplinarian. The democratic constitution of Athens was distasteful to him, and he probably could not forgive his fellow-citizens for the execution of Socrates (B.C. 399). Spartan institutions and manners he warmly admired; and having taken service under Agesilaus for a new expedition to Asia, he fought under him on his homeward march against his own countrymen at Coroneia (B.C. 394). For this they naturally passed a decree of exile against him, and the rest of his life was passed in Peloponnesus. How such conduct would have been judged by Romans we see by the legend of Coriolanus. But it was common in Greece, and was generally actuated by motives much less respectable than those of Xenophon. [E. S. B.]

Xenophon: *Anabasis of Cyrus.* Diogenes Laertius: ii. 5, 6. Grote: *Hist. of Greece*, part ii. ch. lxix-lxxi. There are several English translations of the *Anabasis* and the *Memorabilia.* J. B. Bury: *The Ancient Greek Historians* (1909). H. G. Dakyns: *Xenophon* (in *Hellenica*, ed. by E. Abbott). T. R. Glover: *From Pericles to Philip* (1917).

PHOCION, b. 402, d. 317 B.C.

Born twenty years before Philip, PHOCION outlived Alexander six years. He was forty-five times elected general without once offering himself as a candidate. A brave and successful soldier, he was the

constant advocate of peace. He was perhaps the only Athenian statesman of his time who was believed by his contemporaries to be incorruptible. To have clean hands was indeed rare at Athens. But with Phocion it was but one manifestation of the pure morality and deep sense of duty which marked the whole of his long career. Although he bitterly opposed the expeditions advocated by Demosthenes, that statesman more than once procured his appointment to command them, knowing that he would do his best, and that his uprightness and humanity won the respect of enemies as well as allies.

His opposition to the anti-Macedonian policy of Demosthenes is severely blamed by the admirers of Greek democracy. It is not, however, suggested by any author, ancient or modern, that he took this line from want of patriotism or in a jealous factious spirit. He had made up his mind that there was not in Athens the political virtue, steadfastness, or capacity for self-sacrifice that were indispensable if such a conflict was to be waged, I do not say with success, but even with dignity. The mere prospect of defeat would certainly not have daunted him. If his countrymen had been Romans, he would have encouraged them to die in the last ditch. Old age only deepened his conviction of the unfitness of the Greeks for independence, and in view of the wonderful development of Macedon he saw that they would do well to accept the position of vassal States under her suzerainty. He therefore entirely disapproved of the hopeless rebellion into which Athens and some other States rushed on the death of Alexander. Nevertheless he fought and won his last battle at the age of eighty. Five years later the anti-Macedonian party having again obtained a momentary preponderance, the popular assembly, without any forms of law, and without allowing him to speak in his own defence, voted his death. His last message to his son was an injunction to bear no ill-will against the Athenians. As an orator, Phocion was the most formidable rival of Demosthenes, though his speeches were brief, unadorned, and marked by contempt of his audience. Many of his characteristic sayings are recorded.

[E. S. B.]

Plutarch and Cornelius Nepos: *Phocion*. Grote: *History of Greece*, pt. ii. ch. lxxxviii., xci., xcv., xcvi. Curtius: *History of Greece*, bk. vii. ch. iv.

EPAMINONDAS, b. abt. 418, d. 362 B.C.

The capture of Athens (B.C. 404), which ended the long Peloponnesian war, left Sparta without a rival in Greece. Her domineering and treacherous conduct soon produced disaffection even among her old allies. At Thebes, the chief city of Boeotia, the famous pair of friends, EPAMINONDAS and Pelopidas, by a sudden rising, overthrew the philo-Spartan oligarchy (B.C. 379). Hitherto Thebes had not been a State of the first magnitude, nor had her past history been very

creditable. The Bœotians were sneered at as a dull and somewhat brutal race, excelling in nothing but athletics.

All this was changed under the influence of Epaminondas, in whom political and military abilities of the highest order were combined with a singularly noble and beautiful character. It had been his fortune as a youth to fall under Pythagorean teaching, the only Greek philosophy which, by virtue of the training which it gave to the heart and character as well as the intellect, deserved to be called a religion. Throughout life he was conspicuous not only for all the qualities and accomplishments which often adorned his countrymen, but for the very non-Greek virtues of steadfastness, abnegation, humility, chastity, and absence of jealousy or rancour. His was a most perfect moral and intellectual nature cultivated to the highest pitch, and placed by good fortune in circumstances which thoroughly tested and displayed it. His impulse and example produced nothing less than a moral and spiritual renovation among his fellow-citizens, especially the younger of them, and at once changed the whole face of affairs in Greece.

At the battle of Leuctra (B.C. 371), the new military drill introduced by Epaminondas, and his masterly tactics, inflicted upon Sparta the first great defeat she had suffered in her history. Thebes now became the leading State in Greece. It was the aim of Epaminondas to unite the Greek States under the leadership of Thebes in one confederacy in which the independence of each should be respected instead of being crushed as under the Spartan and Athenian supremacies. It was a project impracticable, as we know, but not to be called chimerical. After a splendid career of seventeen years Epaminondas fell at the battle of Mantinea in the moment of victory over the combined armies of Sparta and Athens. Thebes did not maintain her commanding position after his death. [E. S. B.]

Cornelius Nepos: *Epaminondas and Pelopidas.* Plutarch: *Pelopidas.* Xenophon: *Hellenica*, vii. Diodorus: xv. Grote: *History of Greece*, pt. ii. ch. lxxvii-lxxx. Curtius: *History of Greece*, bk. vi. ch. i., ii.

THEMISTOCLES, b. abt. 514, d. abt. 449 B.C.

Of the eight Greek worthies in the first week of Cæsar six are Athenians, one a Spartan, and one a Theban. None of them except Epaminondas appear to have dreamt of unifying Greece.[1] Devotion to the interest of their own States so absorbed them as to exclude all thought of a wider incorporation. From this point of view they rank below the humblest heroes of Rome. But they represent—six of them at least—the resistance to Persia, "which by its indisputable necessity, its decisive success, and its thorough dignity, claims our gratitude no less than our admiration" (*Pos. Pol.* iii. 230). The

[1] Judged by their work, Epaminondas and Phocion would seem to belong rather to the next week as companions, the one of Pericles, the other of Polybius. But after much consideration, I have come to the conclusion that Comte placed them in the Calendar simply as remarkable types of the virtuous man mixing in politics.

Persian Empire is to be classed among the Theocracies, because its institutions were based on divine right instead of on the public will, its chiefs were obeyed on account of their birth instead of being chosen for merit, and thought was in bondage to an unprogressive religious belief. But it was a "degenerate theocracy," because it had not the industrial and pacific tendencies which normally characterise that phase of civilisation. Asia Minor and Egypt had been rapidly overrun by the highlanders of Persis, who became in effect a dominant military caste, trampling on the submissive populations and dragging their unwarlike levies to carry out further conquests.

The incoherent, ill-organised empire thus suddenly created was now extending itself to Europe, when its progress was stayed by the resistance of Greece. It was the clash, not indeed of two races—for the Persian also was an Aryan, as were many of his motley host—but of two civilisations and religions. They could not settle down peaceably side by side. The Orientals felt instinctively that only by subjugating Greece could they escape the dissolving revolutionary influence which her proximity had already begun to exert upon Asia. If they had been successful—as very nearly they were—the intellectual movement which Greece alone was then competent to carry forward must have been seriously impaired if not arrested. It was therefore no accident that the conflict was provoked and mainly sustained, not by the warriors of conservative Sparta, but by the cultured democracy of Athens. If the excessive subdivision of States and the consequent pettiness of Greek politics excluded statesmanship of the highest order, these very conditions were, on the other hand, favourable to intellectual progress, diverting as they did the choicest minds from a public career, and enabling thinkers who became obnoxious in one city to retire to another without quitting Greece. From this point of view, even the narrowest form of Greek patriotism may be considered to have been not without advantage to Humanity.

THEMISTOCLES, who had distinguished himself at Marathon, became the leading statesman of Athens after the death of Miltiades. He saw clearly not only that the struggle with Persia would be renewed, but that it would be decided by superiority at sea rather than on land. Hitherto Athens had depended on her infantry. Themistocles took advantage of the ten years' respite between Marathon and Salamis to transform her into a maritime power. His policy was hotly opposed by Aristides, the leader of the conservatives, who believed, and truly, that with maritime development old-fashioned principles and institutions would be weakened.

When Xerxes came the new fleet was the salvation of Greece. Themistocles commanded it. Although Athens furnished ten times as many ships as Sparta, with a magnanimity rare among Greeks, he cheerfully submitted to serve under the Spartan admiral. The Persian fleet was vastly more numerous, and it was with great difficulty that he prevailed on the confederates to make a stand off Artemisium (B.C. 480). In two battles fought there, indecisive but

encouraging for the Greeks, Themistocles and his squadron especially distinguished themselves. When Xerxes forced Thermopylæ and passed into Attica, the Athenians, by the advice of their great leader, left Athens to be burned; and, having transported their non-combatants to Peloponnesus, made their "wooden walls" their city for the time. The combined fleet was now in the bay of Salamis.

In the famous council the night before the great battle, Themistocles urged that if they retreated further, as the Peloponnesians selfishly proposed, the contingents would disperse to their homes and Greece would be lost. As he earnestly pressed this view, an exasperated opponent lifted his stick. "Strike, but hear me," was the calm reply. Appeals to honour, generosity, and common sense, proving alike fruitless, the Athenian resorted to the audacious expedient of secretly sending a message to Xerxes that the allies were about to fly and that he would do well to intercept them. When dawn broke, they found themselves hemmed in. There, by "sea-born Salamis," was fought and won the most memorable of all battles, ancient or modern (B.C. 480). The overwhelming Persian land-force remained in Greece till the next year, when it was destroyed at Platæa. But Xerxes fled home, scared by another message of simulated friendliness from Themistocles, pretending that the Greek fleet was about to break down the bridge over the Hellespont. When the commanders met to adjudge the prizes for skill at Salamis, like true Greeks each voted the first prize to himself, but a large majority of votes for the second prize were cast for Themistocles.

The Athenians came out of the war covered with glory. But their city being a ruin they were defenceless, and Spartan jealousy would fain have hindered them from rebuilding their walls. Through this crisis too they were piloted by Themistocles with infinite skill and daring. Athens was re-fortified, and, what was still more important, the harbour Piræus also.

After these splendid services, it is sad to tell that Themistocles was exiled; sadder to feel no confidence that he did not deserve it. Accused subsequently of treasonable correspondence with Persia, hunted from one Greek city to another, he at length took refuge with Artaxerxes, and now at all events promised to assist him in subjugating Greece. Many an eminent Greek career is stained with an infamy of this sort. Themistocles was saved from consummating it by death. The good that he did lives after him; the evil was interred with his bones. [E. S. B.]

Herodotus: vii., viii. Thucydides: i. 89-93, 135-138. Plutarch and Cornelius Nepos: *Themistocles*. Grote: *History of Greece*, part ii. ch. xxxvi.-xliv. *Pos. Pol.* iii. 230, 238.

PERICLES, b. abt. 495, d. 429 B.C.

PERICLES was the leading statesman of Athens for some forty years, during which period she reached her highest point of power and

splendour. He finally swept away the last traces of aristocratic institutions which had been disappearing one by one since the reforms of Solon. It was Pericles who raised Athens to be an Empire-state. The maritime allies, who had elected her to be their leader in the war against Persia, were gradually reduced to the position of subjects. Their military service was commuted for money payments, which came to be treated as tribute. Pericles maintained that they had no claim to inquire what was done with it, as long as they were efficiently protected from the Persians. Much of it, therefore, was spent in the adornment of Athens with those splendid works of art of which some of the finest remains are now treasured in the British Museum, and on the religious festivals which, with their poetic and spectacular accompaniments, rejoiced the hearts and cultivated the taste of poor and rich alike. But the Athenian of the age of Pericles was no idle lounger. He did not sit at home at ease and leave the fighting to be done by mercenaries as he did later on. As soldier or oarsman " he accounted it holiday work to do duty in the service of his city ; he used up his body for her as though it had been the body of another."

Pericles was an able general, but most distinguished as an orator. Indeed, it was with him that oratory became a political force of the first magnitude at Athens. In this, as in many other respects, the Periclean system contained the seeds of mischief, nobly as it worked in the hands of its creator. " Powerful from the dignity of his character as well as from his wisdom, and known to be incorruptible, he restrained the people with a free hand, and was their real leader instead of being led by them. For, not being a seeker of favour from unworthy sources, he did not speak with any view to present favour, but had sufficient sense of dignity to contradict the people on occasion, even braving their displeasure ; so that in name it was a democracy, but in reality a government by the most eminent citizen. After his death the leading statesmen were more on a level, and in their competition for pre-eminence took to courting the people, sacrificing to that object even important state-interests " (Thuc. ii. 65).

Early in his career Pericles procured a decree inviting all the States of Greece to hold a congress for the purpose of establishing a federate union. He was the first Greek who cherished this aspiration. It met with no encouragement ; but Pericles, no doubt, hoped that an extension of the Athenian Empire would realise the same end in a different way. He entered on the Peloponnesian war, which was to end twenty-five years after his death in the ruin of Athens, with cheerful confidence. The funeral oration over those who fell in the first combats, attributed to him by Thucydides, gives a striking and noble picture of Athenian civilisation at its best. His death in the third year of the war was an irreparable loss to Athens and to Greece.

[E. S. B.]

Thucydides : i. and ii. Plutarch : *Pericles*. Diodorus : xii. Grote : *History of Greece*, pt. ii. ch. xlv.-xlix. Curtius : *History of Greece*, bk. iii. iv.

PHILIP, b. 382, d. 336 B.C.

The growth of Macedon presents some resemblance to that of Rome. Starting from very small beginnings, she slowly but steadily subjugates her neighbours of kindred blood during a period of some 350 years. She has to struggle with the Illyrians, as Rome with the Gauls. Her long antagonism to Athens (which began immediately after the Persian invasion) is not unlike the rivalry between Rome and Carthage. On the one side there is a continental power fairly homogeneous in its elements, on the other an ill-cemented maritime empire; while for steadiness of policy the Macedonian dynasty is not unworthy to be compared with the Roman oligarchy. The royal family was allowed to be of Greek blood, and its princes were admitted to contend at the Olympic games. This status was of the highest value to them, and they made the most of it. They admired Greek civilisation, and laboured to introduce it among their subjects. Euripides, Zeuxis, and many other poets and artists were welcomed at their court.

PHILIP II. had been educated at Thebes in the brilliant days of Epaminondas, and was as accomplished a Greek as Demosthenes himself. As a soldier he was among the greatest and most creative known to history. The Macedonians had always been warriors; but Philip made that mighty military machine, the Macedonian army, which under its founder subdued Illyrians, Thracians, and Greeks, and under his son conquered the East. A master of strategy and tactics, his only fault in war was the reckless exposure of his person. For imperial aims and achievements he belongs to the order of the Alexanders, the Cæsars, and the Charlemagnes, being indeed the first man of that type who arose in the West. To State, no less than to army, he gave a new organisation, one which maintained a healthy cohesion down to the last struggle with Rome two centuries later. He proposed to himself to bring Macedonia completely within the Greek state-system; and then, placing himself at the head of this, to concentrate its energies on the old Greek idea of attack on Persia. In carrying out this aim he studiously moved in the paths marked out by Greek history. The only type of union known or possible was the federative. He was careful, therefore, to avoid the appearance of conquest, and to figure as the instrument of the Amphictyonic Council, the venerable Diet recently resuscitated by Epaminondas, which sat at Delphi, the religious centre of Greece. By the battle of Chæronea, B.C. 338, in which he defeated the combined Athenians and Thebans, his projects were at length realised. Proceeding to Corinth, he convoked a congress which was attended by all the Greek States except Sparta, who stood aloof in sulky insignificance. There war was declared against Persia, and Philip was elected generalissimo of the federal army. But while preparing for the invasion, his career was cut short by an assassin in the 47th year of his age. [E. S. B.]

Diodorus: xvi. Demosthenes, Æschines, Isocrates: *Orations*. Plutarch: *Demosthenes, Phocion, Alexander*. D. G. Hogarth: *Philip and Alexander of Macedon*. Grote: *Hist. of Greece*, pt. ii. ch. lxxxvi.-xc. Curtius: *Hist. of Greece*, bk. vii.

DEMOSTHENES, b, 385, d. 322 B.C.

As an orator DEMOSTHENES stands alone, unapproached by any rival ancient or modern. The majesty and beauty of his diction are not hidden from us even by a dead language, while his dialectical skill, his persuasiveness, his invective, and, above all, the lofty ethical character of his appeals, lose nothing by translation. But it is as an Athenian statesman that we have to judge him here. Like Hannibal and many another admirable champion of conquered causes, he devoted splendid talents and a grand character to resisting a destiny which, as we can now see, it would have been wise to accept. Himself animated by a generous Pan-hellenic patriotism, he could not endure to learn the bitter lesson that the vices and defects of Greek politics were incurable, and that, though the advantages of Macedonian leadership might be marred and nullified by irreconcilable hostility, the thing itself, in better or worse form, could not be escaped. Accordingly, from the moment when Philip began to interfere in Greece he found a vigilant and unwearied opponent in Demosthenes. The Athenians of that day, though coveting empire as much as ever, were not as ready for personal sacrifice as in the time of Pericles. Their armies were oftener composed of mercenaries than of citizens, and the funds which should have equipped fleets were lavished on the religious festivals and artistic displays so dear to that cultivated populace. Demosthenes, at much risk not only of unpopularity but of punishment, strove, and not without some success, to reform these abuses and to inspire his countrymen with the ardour and energy of other days. But the reforms and the martial revival came too late. In another direction he laboured to compose the fatal feuds between the leading Greek States, and to transform their inveterate jealousies into a noble emulation for the defence of their common independence, threatened by Macedon. The crowning triumph of the patriot orator was when he confronted the ambassadors of Philip at Thebes, and by his glorious eloquence prevailed on the old enemies of his city to forget their grudge and join with Athens in striking a last blow for the liberties of Greece. Side by side stood the citizen soldiers of Athens and Thebes on the fatal field of Chæronea, and together they went down before the trained battalions of Macedon, the genius of Philip, and the fiery valour of the youthful Alexander. The "sacred band" of Thebes, the old companions of Epaminondas, died to a man, and 1000 Athenians lay beside them. But Demosthenes, who had himself served in the ranks on that terrible day, could proudly aver that he would never repent of the resolve which had saved the honour of his beloved city though all else were lost.

Sixteen years afterwards, on the death of Alexander, Demosthenes again endeavoured to rouse the Greeks against Macedon. But the insurrection was soon suppressed, and the orator took poison that he might not fall into the hands of the victors. He was 63 when he died.

His " Philippics " and his noble oration *On the Crown*, which contains the defence of his career, have often been translated. [E. S. B.]

Demosthenes : *Orations*. Plutarch : *Demosthenes*. Grote : *Hist. of Greece*, pt. ii. ch. lxxxvii.-xci. xcv. Curtius : *Hist. of Greece*, bk. vii.

PTOLEMY I., b. abt. 367-357, d. 283 B.C.

Of all the generals who surrounded Alexander, none distinguished himself more highly or was more trusted by his master than PTOLEMY, the son of Lagus. In the division of Alexander's empire he secured Egypt, which he governed for thirty-eight years with great prudence and an enlightened care for the material interests of the country. His chief title to fame, however, is his foundation of the celebrated " Museum " of Alexandria, a sort of University, which he intended mainly for the promotion and diffusion of science, though it was soon overrun by mere literary men and metaphysicians. Among the men of science who were more or less connected with it may be mentioned Herophilus, Erasistratus, Galen, Euclid, Hero, Ctesibius, Pappus, Apollonius, Aristarchus, Eratosthenes, Sosigenes (?), Ptolemy, Hipparchus, all of them in the Calendar. Ptolemy wrote a valuable history of the campaigns of Alexander. He resigned the throne two years before his death, in order to ensure the succession of his youngest son, Ptolemy II. (Philadelphus), whom he believed the fittest to take his place. Philadelphus worthily protected and developed the Museum. [E. S. B.]

Diodorus : xvii.-xx. Thirlwall : *Hist of Greece*, ch. lvi.-lx. J. P. Mahaffy : *The Empire of the Ptolemies*. *Pos. Pol.* iii. 264-5.

PHILOPŒMEN, b. 252, d. 183 B.C.

After the death of Alexander the Great, the Macedonian kings, although retaining many strong places in Greece, and exercising a preponderant influence there, were unable to establish a state of things corresponding to the " Roman Peace." The Greek States continued to fight with each other, and sometimes with Macedon. In Peloponnesus arose the Achæan League, a federation of the smaller States, exhibiting somewhat more of organisation and cohesion than had been attained in previous attempts of the same kind. Its general policy was to co-operate with the Macedonian kings and obtain their support against the Spartans and Ætolians. Its most distinguished leader was the Arcadian PHILOPŒMEN, a brave and talented general and an honest patriot, who has been called " the last of the Greeks." His aim was to persuade or compel as many States as possible to join the Achæan League, so that it might become really as well as nominally independent of Macedon. But the wearisome permutations and combinations of Greek politics were now to be

brought to an end by the appearance of the Romans on the scene. Reluctantly the Achæans joined them against Philip v. of Macedon. After the defeat of Philip at Cynoscephalæ, B.C. 197, the Romans, who had a genuine and even exaggerated respect for the culture and ancient renown of Greece, were willing to leave the various States in independence if they would remain quiet. But the Achæans cherished the illusion that their League might go on enlarging itself. The other States, when threatened with absorption, of course appealed to Rome, and her constant interferences to settle their disputes could not but end in the complete subjugation of Greece. In an attempt to reduce the Messenians, who had seceded from the League, Philopœmen was taken prisoner, and put to death in his 70th year.

[E. S. B.]

Plutarch: *Philopœmen*. Polybius: bk. x. xxiv. Thirlwall: *Hist of Greece*, ch. lxii.-lxv.

POLYBIUS, b. abt. 204, d. abt. 122 B.C.

Lycortas, an Arcadian, the father of POLYBIUS, became General of the Achæan League on the death of Philopœmen, at whose obsequies Polybius carried the funeral urn. The young man was early entrusted with high military and diplomatic functions. The condition of Greece had now become more frightful than at any period of her past history. Relieved by Rome from the pressure of Macedon, she was torn by incessant petty wars which had degenerated into mere brigandage. In fact, she was rapidly relapsing into barbarism. In the final struggle between Rome and Macedon, Polybius wisely advised the League to side with Rome. Nevertheless, after the decisive battle of Pydna (see § ÆMILIUS PAULLUS), when the Senate determined to transport all the leading men of Greece to Italy, Polybius was among them. Here he became an honoured inmate of the house of Paullus, and a warm friend of his son, the worthy Scipio Æmilianus. Filled with respect and admiration for the qualities and career of Rome, and judging them with a large philosophic insight not at that time to be found among the Romans themselves, he conceived the design of writing his great historical work on the rise, growth, and causes of the Roman supremacy. The fragments of this which have been preserved are among the most valuable relics of antiquity. "Under Theocracy history was merely biographical. In the freer atmosphere of Greece it improved by assuming a collective character. On the other hand, it lost by becoming a simple narrative, without any social purpose, and therefore less fraught with moral significance than the biography which it superseded. Roman thinkers, trained in the arena of public life, gave it, once for all, a decided if empirical tendency, to grasp the true filiation of events affecting humanity. The connecting link between the two methods is furnished by the great Polybius. He was the last organ of Greek sociology; but his qualities

were developed under the ascendancy of Rome, with which he nobly identified himself, and from which he acquired the universality which is his distinguishing feature" (*Pos. Pol.* iii. 335). Returning to Greece, after seventeen years of exile, Polybius strove to prevent his countrymen from rushing into their last mad struggle with Rome; and after their final subjugation his influence at Rome was used to alleviate the terms imposed upon them. The settlement and organisation of the new province was indeed largely intrusted to him, and in carrying it out he earned the warm gratitude of his countrymen.

[E. S. B.]

Many statements about himself are scattered through his *History*. Thirlwall: *Hist. of Greece*, ch. lxvi. Ihne: *Hist. of Rome*, bk. v. ch. iii. iv. J. B. Bury: *The Ancient Greek Historians* (1909). J. L. Strachan-Davidson: *Polybius* (in *Hellenica*, ed. by E. Abbott).

ALEXANDER, b. 356, d. 323 B.C.

Before the Macedonian era Greece, so far from doing anything towards incorporating the ancient world, had utterly failed in the necessary preliminary of unifying herself. Nay, she had become more and more incapable of it; for if it had ever been possible it was at the moment of the repulse of Xerxes. After Epaminondas, every Greek community was stale and used up. Yet never was Greece more military. Only, instead of serving as citizen soldiers, the warlike spirits were mercenaries roaming over Greece and Asia, and ready to fight for any one who would pay them. It was time that the task of incorporation should be taken up from without.

The Macedonians were of the same stock as the Greeks. Their language probably did not differ from Greek more than French does from Italian. Their manners and institutions were simply those of the Homeric age. In short, they were just backward Greeks. Yet in the eyes of their vain and arrogant kinsmen they were foreigners speaking an outlandish jargon, and therefore to be classed with Persians and Thracians, as outside the pale of civilisation. But they only needed access to the sea, from which they had been at first cut off by a coast-fringe of Greek settlements, to make a rapid rise in civilisation; and they had two qualifications for empire which no Greek State possessed—incontestable superiority in strength and stable political institutions. If the Greeks could have purged themselves of their paltry conceit and dropped their petty conception of nationality, they might have settled down into a confederacy under the leadership of Macedon, and so perhaps have escaped the more alien domination of Rome.

The week of Alexander includes Philip, his great precursor, and Ptolemy, his principal successor; Greeks who aimed at confederation, such as Pericles and Demosthenes, and Greeks who wisely acquiesced in incorporation from without, such as Philopœmen and Polybius.

The biographies of Philip and Demosthenes describe the rise of the

Macedonian power. ALEXANDER III. was educated by Aristotle, whom Philip invited to his court for that purpose. Succeeding his father at the age of 20, he spent the first year of his reign in consolidating his power in Europe. In 334 he crossed into Asia, whence he was never to return. His army of 35,000 men was, for training, scientific organisation, variety of equipment and adaptation, incomparably superior to anything the world had yet seen ; and the military genius of its leader has perhaps only been paralleled by Hannibal and Bonaparte. The remaining eleven years of his short life were spent in almost continuous marching and campaigning. Traversing Asia Minor, Phœnicia, and Palestine, he entered Egypt ; thence back into Mesopotamia, and so by Babylon and Susa to Persepolis in Farsistan. Then turning north to Ecbatana (Hamadan), and skirting the southern shore of the Caspian, he passed out of the modern kingdom of Persia by way of Meschid, and, crossing the Paropamisus, descended by Herat to Candahar. Thence by way of Cabul, Balkh, and Samarcand he penetrated to the Jaxartes (Syr-Daria) in the Khanate of Khokand, the northernmost point of his conquests. Returning to Cabul, he sent a division down the Khyber Pass, himself marching through Kaffiristan to the Indus. Crossing that river near Attock, he pushed through the Punjaub to the Sutlej, with the intention of conquering India. But his soldiers refused to follow him further, so, unwillingly retracing his steps, he passed down the Indus to its mouth and thence through Beluchistan and Persia to Babylon. There he died, at the age of 32, from a fever brought on by excessive drinking, to which, like his father, he was addicted.

The stupendous achievements of Alexander, their far-reaching political importance—affecting the world as they did for many centuries after his death—and their yet more important result, the wide diffusion of Greek art, science, and philosophy, make it impossible to deny him the title of "Great," which the common consent of mankind has added to his name, or to give him any lower position in the Calendar than Comte has assigned him. Yet it must be confessed that in his character and career there is too much that reminds us of Bonaparte. There is the same overweening egotism, the same insatiate thirst for what the Corsican called "glory," the same appetite for adulation, the same brutal contempt for other human beings whether friends or foes. There are also the frenzied outbursts of passion which Bonaparte only simulated. And as all these vices were growing upon him with appalling rapidity, it was well for him and for others that his career closed so early. But Alexander is lifted from the level of Bonaparte by the fact that his principal work, the overthrow of Persia, was indispensable for the due development of ancient civilisation. Anterior Asia, at all events, became more or less Hellenised ; and the danger in after ages from the Arsacids, from Timur and from Zenghis, must make us hesitate to condemn his attempt to bridle the barbarous Turanians of Central Asia. But his invasion of India, like the march to Moscow, was prompted by a

diseased craving for universal dominion and a vulgar desire to dazzle mankind.

He was contemplating, and would doubtless have effected, the conquest of Carthage and of Italy, where Rome had just entered on the Samnite War. This would have been an unmixed evil. His vast empire was carved up by his generals into several kingdoms, the chief of which, Macedon, Syria, and Egypt, remained under Macedonian dynasties till their subjugation by Rome. [E. S. B.]

Arrian: *Anabasis of Alexander.* Quintus Curtius: *History of Alexander.* Plutarch: *Alexander.* Grote: *History of Greece*, pt. ii. ch. xci.-xcv. D. G. Hogarth: *Philip and Alexander of Macedon.* J. P. Mahaffy: *Problems in Greek History*, ch. viii.; *Alexander's Empire.*

BRUTUS (*Lucius Junius Brutus*), d. abt. 509 B.C.

There is no reason to doubt that such a person as BRUTUS may have existed, and have played a leading part in the expulsion of the Tarquins, which undoubtedly took place about B.C. 510. But his story is evidently legendary, and we have no means of sifting from it any facts it may contain. None the less properly may we treat him as a type of early Roman manners—a type all the more perfect because delineated by an unconscious poetry. Like many another legendary hero, he is at once the idealised reflection of the life and conduct prevailing in early Rome and the model after which they were shaped. The early Romans, like all the peoples of the military West, consisted of but two castes: the nobles, combining priestly and military functions (Patricians), and the non-noble Freemen (Plebeians), who also are fighting men. There is a king, more or less controlled by a Senate of Patricians; while in the Assembly of the whole people the Plebeians have a recognised place, though their attitude is usually passive and acquiescent. The theocratic principles of Birth and Divine Right, though stunted, are still at this stage preponderant. But warlike manners tend to undermine these principles, and to substitute for them the qualification of Capacity and the institution of Election. The first step in this direction is when Royalty is superseded (actually, as at Rome and Athens, or virtually, as at Sparta) by an Oligarchy of the Noble caste. According to the story, King Tarquin the Proud made himself odious to both Patricians and Plebeians by his tyranny. At last, an outrage committed by his son Sextus on the noble matron Lucretia, followed by her suicide, produced an outburst headed by Brutus, a Patrician, who swore to avenge her death. The Tarquins were expelled, and Brutus was elected Consul. Having detected his sons in a conspiracy for restoring the royal family, he sentenced them to death, and himself looked on while they were scourged and beheaded before his tribunal: his countenance, says Livy, betraying the anguish of the father, though he inflexibly discharged the office of the magistrate. In a battle shortly afterwards, Brutus met a son of Tarquin in single

combat, and both were slain. In this famous legend the two leading obligations of Roman morality, duty to family and duty to country, are exhibited in conflict, and the subordination of the former to the latter is firmly marked. The greatest of Roman poets, though, as usual, striking a note of modern feeling, looks at the deed of Brutus with the eyes of a Roman. St. Augustine, as might be expected, has no sympathy with the heathen patriot. [E. S. B.]

Livy : i. 59, 60 ; ii. 1-7. Plutarch : *Publicola*. Virgil : *Æneid*, vi. 817. St. Augustine : *de Civ. Dei*. iii. 16. Cicero : *de Rep*. ii. 25. Arnold : *Hist. of Rome*, vol. i. ch. vii.

CAMILLUS (*Marcus Furius Camillus*), **b. abt. 445, d. 365 B.C.**

The tendency of military manners to supersede the principles of Birth and Divine Right by those of Merit and Election could not stop short at the abolition of Royalty in favour of Aristocracy. The Plebeians, being a part of the armed host, did not remain contented with the mere suffrage. They claimed eligibility to office, and Rome was long torn by an agitation for the abolition of Patrician privileges. Nevertheless, the legends proudly tell how, in the face of danger from without, both castes generally suspended their quarrels, and vied with one another in a generous devotion to their common country. The Patricians to some extent justified their monopoly of office by the skill, courage, and tenacity which the Senate exhibited, no less in its policy towards neighbouring states than in its resistance to Plebeian demands. The final victory of the Plebeians in B.C. 367, when one consulship was secured to them by the Licinian Law, was at once a consequence of the progress of military manners and a cause of the widely extended warlike activity which immediately followed. CAMILLUS, who lived during the latter period of the struggle between the orders, is one of the most characteristic types of the aristocracy. His conquest of Veii after a ten years' siege marks decisively the decline of the Etruscan power, which at one time had threatened to crush the Latin-speaking peoples. By this and other achievements he attained a more commanding position than any Roman before him. But, as he was a resolute champion of Patrician privileges, now tottering to their fall, he was driven into exile, praying, it is said, that his ungrateful country might soon need his services. The next year (B.C. 390) a roving band of Gauls defeated the Romans at the battle of the Allia, burnt Rome, and besieged the Capitol. But when the beleaguered fortress was at its last extremity, Camillus appeared at the head of an army of Roman fugitives and other Latins, and in a great battle cut the Gauls to pieces. This part of the story is not entitled to credit. But that the Gauls disappeared as suddenly as they had come, and that Rome rose from her ashes with her power unimpaired, is evident. Whatever was the real share of Camillus in these events, he was ever afterwards celebrated as "the second founder of Rome." The Plebeians, according to the legend, headed by their

tribunes, proposed a migration from the ruins of Rome to the vacant city of Veii. But Camillus and the Patricians resisted so shameful and impious a desertion of the consecrated spot, and their healthy and far-sighted conservatism at length prevailed. During the remaining years of his life Camillus enjoyed unprecedented influence, which he increased by many other military achievements. As the trusted leader of the Patricians, he long and obstinately opposed the bill of Licinius. But when further resistance seemed likely to result in civil war, he wisely and patriotically prevailed on his order to accept a compromise which only veiled their complete surrender. The last act of Camillus thus connects his name with a decisive moment in the history of Rome. [E. S. B.]

Livy : v. vi. Plutarch : *Camillus.* Arnold : *Hist. of Rome,* ch. xviii. xix. xxiv.-xxvi.

CINCINNATUS (*Lucius Quinctius Cincinnatus*), b. abt. 519, d. after 439 B.C.

The life of CINCINNATUS covers the first half of the period between the abolition of Royalty and the Licinian Law, as that of Camillus covers the latter half. He was appointed Dictator B.C. 458, when news had suddenly come that the Consul and his army were surrounded and in danger of destruction. The deputation sent by the Senate to fetch the old general found him ploughing on his estate of four acres. Within sixteen days he beat the enemy and laid down the dictatorship, which he might have held for six months. The legend illustrates several characteristics of the Patrician ascendancy. All Patricians are essentially equal whether they are rich or poor. Extraordinary emergencies make it necessary occasionally to select leaders for their merit, but even then only within the Patrician order and for a short time, which a Patrician well trained in oligarchic principles will make shorter if he can. The contempt of military antiquity for manual labour is at Rome subject to one exception : to till one's own land with one's own hands is no dishonour (Cicero, *de Sen.* 16). Cincinnatus was an obstinate defender of Patrician privilege, and at the age of 80 was again appointed Dictator in order to shed the blood of the popular leader Spurius Mælius. [E. S. B.]

Livy, iii. 26, iv. 13. Arnold : *History of Rome,* ch. xi. xvii.

FABRICIUS (*Caius Fabricius Luscinus*), beginning of 3rd Century B.C.

The political equalisation of the Patrician and Plebeian castes was soon followed by an immense increase of military activity. At the Licinian legislation (B.C. 367), the Roman territory, though it had

been steadily growing for at least four centuries, had a coast-line of only 60 miles, and did not extend inland across the Apennines. In another 100 years Rome was mistress of Italy, and the first military power of the world. The so-called Republic was still practically governed by an oligarchy, but an oligarchy recruited from the richest plebeian families equally trained in the old Roman system, and inheriting the old senatorial traditions. FABRICIUS is a good type of this renovated governing class. As a general he distinguished himself (B.C. 285-275) in the subjugation of South Italy and the war with Pyrrhus. But he is more famous for his poverty and stern integrity. That he should have refused the invitation of Pyrrhus to become his most trusted officer and counsellor was a matter of course, and would have been so at any period of Roman history. Both the invitation and its rejection are eminently characteristic of the difference between Greek and Roman notions of patriotism. But in refusing the king's gold Fabricius showed a delicacy to which most Roman generals of the next century were strangers. As little were they disposed to imitate the chivalrous feeling which led him and his colleague Æmilius to denounce to Pyrrhus the offer of his physician to poison the great enemy of Rome. As Censor, he expelled from the Senate Rufinus, the ablest general of the day, for possessing ten pounds weight of silver plate. At his death his daughters were portioned by the Senate, and he received the singular honour of burial within the city precincts. [E. S. B.]

Plutarch: *Pyrrhus*. Valerius Maximus: iv. 3, 6. Livy: *Epit.* xiii. xiv. Arnold: *History of Rome*, ch. xxxvi.-xxxviii.

REGULUS (*Marcus Atilius Regulus*), d. abt. 250 B.C.

In the ninth year of the first Punic War (B.C. 256), REGULUS, then Consul for the second time, after a great naval victory landed in Africa, and at first carried all before him, reducing Carthage to the brink of ruin. But next year he was defeated and taken prisoner. Five years later he was allowed to accompany a Carthaginian embassy to Rome in order to obtain peace or an exchange of prisoners, giving his word to return if the proposal were rejected. The Senate wavered. But Regulus exhorted them to pursue the war to the bitter end. As for an exchange of prisoners, Romans who had allowed themselves to be disarmed and bound were not worth recovering, and the precedent would be dangerous. Well did he know what tortures awaited him at Carthage. But none the less firmly did he turn his back on Rome, keeping his eyes fixed on the ground, putting aside the hands of friends and the embrace of wife and children as a dishonoured man, no longer a citizen of Rome but a slave of Carthage. On his return, says the story, which in this particular at least is probably untrue (see Ihne, ii. 80; Mommsen, ii. 46), he was put to death with horrible tortures. True or not, we cannot doubt the

powerful effect of this famous story as an example of devoted patriotism and strict honour. [E. S. B.]

Cicero : *de Off.* iii. 26. Valerius Maximus : i. 1, ix. 2. Livy : *Epit.* xviii. Arnold : *History of Rome*, ch. xl. The noble Ode of Horace, iii. 5, should be read.

HANNIBAL, b. 247, d. 183-181 B.C.

If the ancient world was to be incorporated, it was necessary that one State should conquer all the rest. As soon, therefore, as the growing Empires of Rome and Carthage came into contact an internecine conflict was inevitable. Hamilcar, whose grand character and brilliant military qualities had not saved his country from defeat in the first Punic War, formed the plan of creating a Carthaginian Empire in Spain, from which Rome might be again attacked. He took with him his son HANNIBAL, then nine years old, whom he had already bound by an oath never to be a friend with the Romans. Hamilcar carried out the first part of his plan with consummate skill ; and when, 17 years afterwards, his son succeeded to the command in Spain everything was ready for the decisive struggle.

In 218 B.C., Hannibal executed his wonderful march over the Pyrenees and Alps into Italy, and commenced the long career of victory which ranks him among the greatest generals of all time, if indeed he be not the greatest. In the first three years he smote Rome in three terrible battles at the Trebia, Trasimenus, and Cannæ. But, contrary to his expectations, the Italians for the most part remained faithful to Rome. In the eighth year he pushed up to the very walls of Rome, hurling his javelin into the city in defiance. In the twelfth year, his gallant brother Hasdrubal, who had marched from Spain to reinforce him, was defeated and slain at the great battle of the Metaurus, celebrated in a fine ode of Horace (iv. 4) as having at last freed Rome from the terror of "the fell African." But for four years longer, though too weak for offensive operations, Hannibal remained in South Italy, no Roman general venturing to disturb him ; and it was not till he was summoned to defend Carthage itself that he quitted Italy (203 B.C.), where during 16 years, though meeting with occasional checks, he had never suffered a defeat. He was now 45, and had not seen his native land since he had sailed with his father to Spain ! The decisive victory of Scipio at Zama (202 B.C.) detracts nothing from the military reputation of the great Carthaginian. Carthage was in effect beaten already. Her last hope of success had vanished at the Metaurus.

With clear judgment and undiscouraged patriotism, Hannibal now insisted on the necessity of accepting the Roman terms, however hard, and with his own hands pulled down from the platform a passionate orator who called for further resistance. Though Carthage had to accept the position of a dependent State, Hannibal patiently worked at reforming her constitution and repairing her losses, in order to be

ready for any opportunity that might arise. Chased from his country by the jealousy of Rome, he fled to her new enemy Antiochus of Syria, and urged him to employ his resources in enabling Carthage to renew the struggle. The advice was not accepted ; and, on the defeat of the king, Hannibal was hunted by the Roman envoys from one kingdom to another, till at length, despairing of escape, he terminated his life by poison in Bithynia.

The career of this great citizen and warrior is to be regarded not as a protest against the incorporating work undertaken by Rome, but as an attempt to secure the direction of that work for Carthage. It was unfortunate, though inevitable, that their respective qualifications for the task could only be tested by a struggle which annihilated one civilisation and seriously injured the other. Three statues of Hannibal were standing in Rome in the time of Pliny.

[E. S. B.]

Livy : xxi.-xxxix. Cornelius Nepos : *Hannibal*. Polybius : iii. vii. viii. ix. xiv.-xv. Appian : vii. Plutarch : *Marcellus, Fabius*. Arnold : *Hist. of Rome*, ch. xlii.-xlvii. Mommsen : *Hist. of Rome*, bk. iii. A. J. Church : *Carthage*.

PAULLUS (*Lucius Æmilius Paullus Macedonicus*), b. 230, d. 160 B.C.

After the subjugation of Carthage, Macedonia was the only military State of importance left to face Rome. The incompetence of the Roman generals delayed her fall. For when danger from without had ceased, the oligarchical system was not likely to bring the best men to the front. At last men turned to PAULLUS, son of the Consul who "flung away his noble life when Carthage triumphed" on the day of Cannæ, and brother-in-law of the great Scipio. He was an aristocrat of a type then becoming rare, proud of his ancient lineage, disdaining popular arts, a good soldier, a strict disciplinarian, and unsoiled by the bribes and plunder in which most Roman generals were beginning to indulge and by means of which they bought their way to office. Elected Consul for 168 B.C., he speedily finished the Macedonian war by the decisive victory of Pydna. [E. S. B.]

Livy : xl. 25-28, xliv. 17, xlv. 41. Plutarch : *Æmilius Paullus*. Ihne : *Hist. of Rome*, bk. v. ch. iii.

MARIUS (*Caius Marius*), b. 157, d. 86 B.C.

After Pydna the senatorial government rapidly deteriorated. The magistracies, legally open to all, were practically monopolised by a ring of rapacious nobles, who used their plunder to get offices and their offices to get plunder. The gradual extension of citizenship to the Italians was suspended. Dominion grew, but not real strength. Military disasters and disgraces thickened. Generals were corrupt and incompetent, soldiers undisciplined and demoralised. MARIUS,

who was to mend some at least of these evils, was a native of the Volscian district of Arpinum, which had received Roman citizenship only 31 years before his birth. His youth was passed in rustic work. At 23 he was serving in Spain under Scipio Æmilianus, who formed the highest opinion of his military qualities. He was a man of the old-fashioned Italian type—honest, frugal, laborious, narrow, rugged to coarseness, loudly contemptuous not only of luxury but of refinement and culture, impatient of aristocratic insolence, proud of being a self-made man. These traits were strengthened by his uphill struggle till middle age. Though he distinguished himself as a soldier at every opportunity, his rise was slow, young nobles passing over his head. We do not hear of him as supporting the revolution of the Gracchi. Perhaps he was on military service. But four years after the fall of C. Gracchus we find him as Tribune proposing reforms. The reactionary terror was still fresh, and the nobles thought to intimidate him. But Marius, calling his beadle into the senate-house, told him to carry one of the Consuls to prison, and the Senate gave way. He was then 38. He did not obtain the consulship till he was 50, and then only after a stormy candidature, during which he belaboured the nobles with coarse but well-deserved vituperation. His immediate task was to finish the tedious war with the Numidian Jugurtha. The right man was at last in the right place. A hardy innovator, he trampled on the antiquated rule of enlisting only citizens who had some property. Owing to the land-grabbing of the nobles, Rome now swarmed with a landless proletariate, and from these Marius took his recruits. Thus did he lay the foundation of the New Roman Army, the finest the world has seen, which saved ancient civilisation for another five hundred years—the army of Cæsar and Tiberius, of Trajan and Aurelian. It was not too soon. The barbarian cloud, always overhanging the northern horizon, was about to burst, and the decaying Republic was in no condition to abide the storm. Five great Roman armies had been cut to pieces beyond the Alps by the Cimbri and Teutoni. Fortunately these migrating hordes pressed on into Spain before turning back upon Italy, which thus obtained a respite of three years. Marius, returning triumphant from Africa, was elected Consul five years in succession. While awaiting the barbarians, he completely transformed the Roman military system, changing its organisation, equipment, tactics, drill, and even its arms. When the shock at last came he was ready for it. The Teutoni were annihilated at Aquæ Sextiæ in 102 B.C., and the Cimbri near Vercellæ in 101. The career of Marius during the sixteen remaining years of his life was eventful, but not glorious. The unprecedented continuity of his consulships had been a virtual effacement of the Senate. But as a politician, though restless and aspiring, he had neither genius nor decision, and so missed his unequalled opportunity of burying the senatorial government, enfranchising the Italians, and anticipating the work of Cæsar. The nobility found their champion in Sulla, an extraordinary man, the

master of Marius at every point. Chased by the mob from Rome, Sulla promptly returned at the head of an army, and Marius had to fly for his life. When his rival had gone to Asia to fight Mithridates, the old general came back, his violent temper soured by failure, and at the head of the democratic party wreaked a sanguinary vengeance on his enemies. In the midst of these terrible scenes he was carried off by disease in the 71st year of his age—"happiest of Romans," says the ancient poet, "happiest of mankind, had his glorious soul but taken flight at that supreme moment when he stepped down from the triumphal chariot after his Teutonic victory." [E. S. B.]

Sallust: *Jugurtha*. Plutarch: *Marius*. Appian: *Civil Wars* i. Mommsen: *Hist. of Rome*, bk. iv. Ihne: *Hist. of Rome*, bk. vii. ch. vii. xviii. A. H. Beesly: *The Gracchi, Marius and Sulla*. *Pos. Pol.* iii. 326.

THE GRACCHI

Tiberius Sempronius Gracchus, b. 169, d. 133 B.C.
Caius Sempronius Gracchus, b. 160, d. 121 B.C.

The grasping Roman nobles not only bought out the peasant proprietors, but monopolised the public domain, nominally as tenants-at-will of the State, but practically as if it was their freehold. The earlier agrarian laws directed against this wrong were a dead letter. Tillage in many parts was disappearing. Italy threatened to become a vast grazing ground tenanted by slave herdsmen. To TIBERIUS GRACCHUS this seemed to be the sole root of the political decay which became every year more visible after the last of Rome's rivals had succumbed at Pydna. A grandson of the great Scipio, chivalrous, sympathetic, and ardent, he got himself elected Tribune, and, by rousing the popular enthusiasm, carried a new agrarian law compelling his fellow-nobles to disgorge the greater part of the public domain which they occupied, and dividing it in inalienable heritable leaseholds among the landless proletaries. Thus began the Roman Revolution (133 B.C.), which was only closed by the Empire. The Senate bent for the moment to the storm, but before the year was out got up a street riot and lynched the young reformer.

Nine years later stood forward his younger brother CAIUS, equally enthusiastic, but a far abler man and of sterner mould. He had made up his mind that the first step to any reform was to strike straight at the Senate. Getting himself elected Tribune for two successive years, he carried in the popular Assembly a connected series of statesman-like measures, which crippled the oligarchy and made Caius for the time virtual Emperor in everything but the power of the sword. There, however, was the weak spot. The moment came when popular support cooled. The heir of Scipio, the forerunner of Cæsar, he called on the Roman democracy to extend citizenship to the Italians. But the Democracy had not yet been educated to that point. Caius, failing to secure a third election, had no armed force to fall back on,

and fell a victim, like his brother, to reactionary violence. The memory of this noble pair, vilified by Cicero and other oligarchical writers, shines bright to after ages. [E. S. B.]

Plutarch : *Gracchi*. Appian : *Civil Wars*, i. 9. Ihne : *Hist. of Rome*, bk. vii. ch. ii.-vi. Mommsen : *Hist. of Rome*, bk. iv. ch. ii.-iii. Long : *Decline of Roman Republic*, ch. x.-xix. A. H. Beesly : *The Gracchi, Marius and Sulla*.

SCIPIO (*Publius Cornelius Scipio Africanus the Elder*), b. abt. 234, d. abt. 183 B.C.

In the first year of the second Punic War, SCIPIO, then a lad of sixteen, saved the life of his wounded father, the Consul, at the combat of the Ticinus. Two years later he fought at Cannæ. The favour of the people made him Ædile, when he wanted five years of the legal age, in defiance of the Senate. "If all the citizens wish to make me Ædile," he said, "I am old enough." In the seventh year of the war he was sent to Spain to succeed his father and uncle, who had been defeated and slain by Hannibal's brothers. After four years of fighting, the Carthaginians were completely cleared out of Spain. Scipio's success was due not more to his military ability than to the large-minded humanity and freedom from narrow national prejudice which distinguishes him from most other Romans of the Aristocratic period. The Spaniards adored him, and wished to make him their king.

When he returned to Rome in 206, the Senate refused him a triumph; but the people elected him Consul with extraordinary enthusiasm, though he was still only eight-and-twenty, an age at which, according to oligarchical notions, it was hardly time to think of standing for even the lowest offices of State. Hannibal was still in South Italy, but Scipio, with his usual serene self-confidence, announced that he meant to finish the long war in Africa, and let it be understood that if forbidden by the Senate he would appeal to the Assembly of the people. The Senate thought it prudent to shun the conflict, but voted such small supplies of men and money that Scipio was obliged to invite volunteers and free contributions. Both poured in from the Italian allies. Thus early had Rome's subjects begun to look for some great imperial man who would repay their loyal support by the gift of citizenship so grudgingly withheld by the oligarchy.

Even after the crowning victory of Zama, the Senate wished to supersede the hero, but the people voted that none but Scipio should conclude the peace and bring home the army. Though he deprived Carthage of all power of offence, he was too large-minded and generous to destroy the noble city, as the younger Scipio did half a century later at the bidding of the Senate. Similarly we find him protesting later on against the meanness which hunted the great Hannibal from his country.

When Scipio returned home with a glory which had never been approached by any other Roman, the people, we are told, wished to make him Dictator for life. But though he may have felt that only by such a concentration of power could Rome's high destiny be fulfilled, and that he himself was worthy of it, he recognised that the time was not yet ripe. He bore himself through life as superior to his contemporaries ; but he did not try to shake the government or to create for himself a party. Fourteen years after Zama, nominally as lieutenant of his brother, he won the great battle of Magnesia against King Antiochus. When about 50 years old, we find him harassed by an impeachment, not, it is said, promoted by the Senate, but certainly stirred up by Cato, a bigoted partisan of senatorial government of the older type, who looked on the exceptional dignity and prestige of Scipio as a standing insult to the constitution. The memorable scene, in which the hero bade the people rise from the Assembly convoked to try him, and led them in procession to the Capitol to thank the gods for his services to the State, shows that his ascendancy over them was still unbounded. But, not choosing to expose his dignity to such collisions, he retired next day to his country seat at Liternum, where he spent the two or three remaining years of his life. If Scipio was not the most characteristic type of the Roman Aristocracy, to which he belonged by birth, he was beyond question its noblest product in its best days. He left a daughter, who was the mother of the Gracchi. [E. S. B.]

Livy : xxii.-xxxviii. Polybius : x.-xxiv. Ihne : *Hist. of Rome*, bk. iv. ch. viii., bk. vi. ch. xvi.

AUGUSTUS (*at first Caius Octavius, afterwards Caius Julius Cæsar Octavianus Augustus*), **b. 63 B.C., d. 14 A.D.**

Cæsar kept his sister's grandson, OCTAVIUS, much in his company during the last years of his life, carefully superintended his training, and in his will adopted him. Though barely 20 when his uncle was murdered, the young man steered his course with consummate skill as well as courage. By acting at first with the Senate against Antony, he compelled that bold and able soldier, who thought to step into the Dictator's shoes, to treat with him on equal terms. Then, joining in the Triumvirate with Antony and Lepidus, he reduced the Senate to impotence, and crushed its champions, Brutus and Cassius, at the battle of Philippi. Lepidus was soon thrust aside, and for five years the Roman world was divided, Octavianus governing the West and Antony the East. By the great sea-fight of Actium (31 B.C.), the former became at length sole ruler.

Augustus is reckoned as the first "Emperor," though, either fearing the fate of Cæsar or from deficiency of creative genius, he did not formally establish a monarchical constitution. He preferred to govern by virtue of the consular, proconsular, censorial, tribunitian,

and pontifical powers, which he gradually accumulated in his own person by means of popular votes; but magistrates with the old names continued to be elected and to exercise some shadow of their old functions. The Senate, which as Censor he had carefully purged, he treated with the greatest respect, affecting to be guided by its advice. He accepted the name "August," but his manner of life was that of an ordinary citizen with none of the outward signs of royalty. His concentrated powers he accepted from the Assembly five times for periods of ten years, always keeping up the fiction that it was a temporary expedient, and that he was anxious for the republican constitution to resume its ordinary working. But the mass of the people had got the government they had long desired. The more sensible and patriotic of the upper classes deprecated any attempt to disturb it. The provincials welcomed it with an inexpressible sense of relief from the miseries of oligarchic oppression. Only a certain number of the nobility kept up a rancorous hatred of the new rule, and, while openly fawning on their master, brooded over schemes of mutiny and assassination. But 10,000 Prætorians sufficed to guarantee order in Italy. All the rest of the army was posted on the frontiers to keep out the barbarians.

In cleaving his way to power Augustus had shrunk from no perfidy or cruelty. A dissembler he always remained; but when once firmly seated he behaved with moderation and even generosity to his enemies. His long reign was one of incessant labour and careful attention to the welfare of his subjects. His motives and impulses may not have been of the highest; but he was one who could not help liking to play his part creditably—a quality in rulers which, if not quite the same thing as a conscientious devotion to duty, is, for the ruled, practically its equivalent. How much Rome and Humanity lost by the removal of Cæsar before he had organised the Empire can never be calculated; but it was a remarkable piece of good fortune that the great Dictator should have left an heir who stands so high among statesmen for strength and sagacity. [E. S. B.]

Suetonius: *Augustus*. E. S. Shuckburgh: *Augustus*. Dion Cassius: xlv.-lvi. C. Merivale: *History of the Romans under the Empire*, vols. iii. iv. J. B. Bury: *A History of the Roman Empire*.

MÆCENAS (*Caius Cilnius Mæcenas*), b. bet: 73 and 63, d. 8 B.C.

An early friend of Augustus, MÆCENAS became his trusted minister, and, though never aspiring to the senatorial rank or any of the regular magistracies, several times acted as his vicegerent when the Emperor was absent from Italy. In the last years of his life their friendship cooled. Mæcenas was a generous and discriminating patron of men of letters. [E. S. B.]

Dion Cassius: xlviii.-lv. Suetonius: *Augustus*. Horace: *Sat.* i. vi. ix., and many other places. C. Merivale: *History of the Romans under the Empire*, ch. xxvii. xxx. xxxv. xxxvi.

VESPASIAN (*Titus Flavius Sabinus Vespasianus*), **b. 9, d. 79 A.D.**

The death of Nero, the last Emperor of the blood of Augustus, in 68 A.D., led to a short but bloody struggle for the throne between aspirants favoured by different armies. Galba (6th Emperor) perished in January, 69 ; Otho (7th Emperor) in April ; Vitellius (8th Emperor) in December. VESPASIAN (9th Emperor), the final victor, was now 60 years old, and had risen to the highest posts by long and distinguished military service in all parts of the world. He was not a man of dazzling genius. But he was firm, honest, and patriotic ; humane, though capable of severity when necessary ; and penetrated with a strong sense of duty. Though his life had been passed in camps, he devoted his reign principally to restoring the finances of the Empire. The cruelties of Nero were perhaps hardly heard of outside the small class who suffered from them ; but his prodigality and exaction had caused widespread distress and crippled the Government. Upon this had followed the waste and destruction of the civil war. In ancient and mediæval times, when manufacture and commerce were so little developed, the limits of bearable taxation were soon reached. The economic problem was therefore the most pressing ; and, regardless of men's sneers at his avarice and parsimony, Vespasian set himself to grapple with it. But no useful expenditure was spared ; and there was assuredly nothing mean in the conceptions of the Emperor who has left the Colosseum as his abiding monument.

The taint of patrician pride and contempt for the masses had been transmitted in the blue blood of the Caligulas and Neros. Vespasian was of humble birth and was not ashamed of it. He laughed at those who would have invented a pedigree for him, and loved to visit the farm-house where he had been born. Detesting ostentation and luxury, he dispensed with the state which previous Emperors had kept up. He stood at the beginning of a new age, marked by an improved tone of feeling, private as well as public, greater sobriety and decorum, gentler manners, and a broad philanthropy. The example of Vespasian did not a little to promote it. On his death-bed he continued to transact business. When the end approached he made his attendants raise him to his feet. "An Emperor," he said, "should die standing."

[E. S. B.]

Suetonius : *Vespasian*. Tacitus : *Histories*, ii.-iv. Dion Cassius ; lxvi. C. Merivale : *History of the Romans under the Empire*, ch. lvii.-lx.

TITUS (*Titus Flavius Sabinus Vespasianus*), **b. 40, d. 81 A.D.**

From almost the beginning of his reign, Vespasian associated his son with himself as joint-Emperor. TITUS (10th Emperor) was a good soldier, his principal achievement being the capture of Jerusalem (70 A.D.). On his accession to sole power he solemnly declared that

he would shed the blood of no man, and his clemency has become proverbial. The Romans called him "The Delight of the Human Race." After a short reign of two years he died at the age of 40.

[E. S. B.]

Suetonius: *Titus*. Tacitus: *Histories*, i.-v. Dion Cassius: lxvi. C. Merivale: *History of the Romans under the Empire*, ch. lix.-lx.

HADRIAN (*Publius Ælius Hadrianus*), b. 76, d. 138 A.D.

HADRIAN (14th Emperor) was a Spaniard and a cousin and ward of Trajan, under whom he served with distinguished valour and ability in the Dacian and Parthian wars, living also in closest intimacy with him. His remarkable administrative talents were proved in his government of Pannonia. When illness compelled Trajan to quit the army of the East, he left Hadrian in command. That he had marked him out for his successor is certain, though Dion Cassius professes to know that death overtook him before the act was formally completed. However, a letter of adoption was produced, and no one questioned its validity. Hadrian was then 41, and he reigned 21 years. Though a soldier, he was averse to conquest. He withdrew from Parthia, and is said to have regretted the subjugation of Dacia, therein showing less judgment than Trajan. "During his reign scarcely a skirmish broke the profound peace on the frontier. Such peace suited his genius. He was gifted with an eminent capacity for organisation and administration. His immense industry mastered all details, his vast memory retained them. On foot and bareheaded he might be seen traversing every province of his empire, seeing with his own eyes its state and wants, and with a liberal hand supplying those wants. The finances in good order, the soldiers cared for yet held in strictest discipline, the administrative and civil service of the Empire arranged, the cities in every province enlarged and beautified and provided with governments, mild regulations with regard to slaves: such are the features of the Emperor Hadrian's government" (Congreve). He had his sensualities and weaknesses, though neither were allowed to interfere with business. Like Richelieu, he dabbled in art and literature, and valued himself on his fourth-rate performances more than became a great man of action. Though aspiring to the character of clemency which had come to be the glory of Emperors, he seems to have been too ready on occasion to shed the blood of those whom he thought dangerous, especially during the long and distressing illness from which he died. But the Roman world was never better governed than by Hadrian. A few months before his death he adopted Antoninus—an admirable choice. We know his handsome face from many busts. [E. S. B.]

Dion Cassius: lxix. C. Merivale: *History of the Romans under the Empire*, ch. lxvi. R. Congreve: *The Roman Empire of the West*.

NERVA (*Marcus Cocceius Nerva*), **b. 32, d. 98 A.D.**

On the assassination of Domitian (96 A.D.), the Senate, evidently prepared for that event, without a moment's delay took upon itself to nominate NERVA (12th Emperor) as his successor, and no opposition was made in any quarter. Nerva was a respectable and well-meaning old man, but not a soldier or likely to make a strong ruler : defects which perhaps recommended him to the Senate as much as his virtues. His adoption of the great Trajan in preference to any of his own relatives inaugurated the second period of the Empire, during which that best of all modes of transmitting power was commonly employed, and with the happiest results. By this noble and important act he has merited a place in the Calendar. He died after a reign of sixteen months. [E. S. B.]

Dion Cassius : lxviii. C. Merivale : *History of the Romans under the Empire*, ch. lxiii.

ANTONINUS (*Titus Aurelius Fulvus Boionius Arrius Antoninus, afterwards Titus Ælius Hadrianus Antoninus Pius*), **b. 86, d. 161 A.D.**

The paternal ancestors of ANTONINUS (15th Emperor) were Transalpine Gauls, but the family had been domiciled in Italy for at least two previous generations. He was not a soldier, but had won great reputation by his government of Asia ; and when Hadrian adopted him the choice gave universal satisfaction. His reign of twenty-two years was—except for an insurrection in North Britain—a period of profound tranquillity, good order, and general happiness. Hence it is not marked by any striking incidents. Unlike his two predecessors, he resided constantly at Rome—probably the excellent organisation perfected by Hadrian made this possible—superintending everything from that central position and busying himself with law reforms and measures for promoting commerce, education, and public health. "Throughout the meagre notices of his career which alone remain to us, we discover no trace of a selfish thought or passion, none of carelessness or precipitation, none of pride or even of pardonable vanity. Every step, every act, seems to have been weighed by a good heart carefully directed to a definite end" (Merivale). The private conduct of many admirable Emperors falls short of the modern standard of morality. But the life of Antoninus was as virtuous as it was cheerful and laborious. His virtue was that of the naturally good man ; for he did not discipline himself, as so many did then, according to the theories and rules of a particular philosophical sect. The striking and beautiful portrait of his character drawn by his adopted son is well known. That adoption had been prescribed in advance by Hadrian. No arrangement could have been more admirable, and the credit of its success must be shared by all three Emperors. [E. S. B.]

Dion Cassius : lxx. M. Aurelius : *Meditations*, i. 16. C. Merivale : *History of the Romans under the Empire*, ch. lxvii.

MARCUS AURELIUS (*Marcus Annius Verus, afterwards Marcus Aurelius Antoninus*), b. 121, d. 180 A.D.

MARCUS AURELIUS (16th Emperor) was of a Spanish family which had been domiciled in Italy for three generations. No historical personage has been regarded with more interest and admiration. In him the self-sufficient austerity of the Stoic discipline, bent to a social purpose by the Roman spirit, was seen at its best. From early boyhood he was remarkable for his virtuous disposition and his devotion to study. As adopted son of Antoninus he revered his example, and clung to him with sincere affection. As his colleague he dutifully assisted him in the administration, retiring to his beloved studies when the labours of the day were over.

Almost immediately after the death of Antoninus he found himself involved in the troubles which beset his whole reign. The Golden Age of the Empire was drawing to its close. A formidable invasion of the Parthians was gloriously repelled by his able general, Avidius Cassius. But the returning troops brought with them a terrible pestilence which spread over the Roman world, destroying, it is said, half the population. Probably the Empire never recovered from the effects of this depletion. The army was crippled and disorganised, and its losses could only be repaired by the enlistment of slaves. The revenue, too, naturally suffered. The northern barbarians, kept at bay by the legions since the time of Marius, had at last got their opportunity, and swarming across the Danube, reached the entrance of Italy. The student-Emperor detested war, and had no military experience. He was no longer young, and his health, naturally weak, was broken by nightly toil. But he obeyed the call of duty, and the remaining thirteen years of his life were mostly passed at the head of the army of the Danube, in constant conflict with the enemy. The wisdom of the "forward policy" of the great Trajan was now conclusively proved; and when the barbarians were at length hurled back, even the pacific Aurelius was planning the creation of a large province beyond the Upper Danube. But at this moment (175 A.D.) his trusted lieutenant in the East, Avidius Cassius, on a false report of the Emperor's death, assumed the purple, and when better informed, despairing of forgiveness, persisted in revolt. Wearily and mournfully—we have his speech to his army—Aurelius turned to meet his rebel. Before he got to Asia, Cassius had been slain by his own officers. The Emperor lamented his death, and treated his supporters with unexampled clemency. But on the Danube the great opportunity was lost. The barbarians were again on the war-path. After two more years of fierce fighting, and just when the final subjugation of the enemy was in sight, the worn-out Emperor sank and died.

Aurelius committed one great fault—the fault of Cromwell. He did not adopt a successor, but allowed the Empire to pass to his

unworthy son Commodus—the first Emperor who was "born in the purple." The immortal *Meditations*, the communings of this sorely tried servant of men with his own soul, committed to writing "amidst the toils and terrors of the Marcomannic war, in the camp or the military station, on the banks of the Danube or the slopes of the Carpathians," find a place in the Positivist Library. [E. S. B.]

Dion Cassius, lxxi. C. Merivale: *History of the Romans under the Empire*, ch. lxviii. *Pos. Pol.* iii. 333. The *Meditations*, often translated, are in the Loeb Classics. The Positivist Library includes *Select Thoughts of Marcus Aurelius*.

PAPINIAN (*Æmilius Papinianus*), **b. abt. middle of 2nd Century, d. 212 A.D.**

The greatest of the Roman jurists, PAPINIAN, was probably, like Ulpian, a Syrian by birth, and was said to be related to Julia Domna of Emesa, the second wife of the Emperor Septimius Severus. He seems to have been early connected with Severus, whom he succeeded in the office of Consul to the Treasury during the reign of Marcus Aurelius. On the accession of Severus, 192 A.D., Papinian was promoted to important offices of State. He was Master of Petitions, or Chancellor, and then Captain of the Guard—in effect, Governor of the city of Rome, with supreme civil and criminal jurisdiction. Severus came to Britain (in 208) to subdue Caledonia, and apparently Papinian accompanied him, and was present at the death of the Emperor at York (212 A.D.). Severus on his death commended his two sons, Caracalla and Geta, to the care of Papinian. But the infamous Caracalla, on coming to the throne dismissed Papinian, soon murdered his brother Geta in the presence of their mother, and shortly afterwards murdered Papinian. It is said that the cause was the refusal of the great lawyer to defend the murder of Geta before the Senate. "It is easier to commit parricide than to defend it," said the intrepid judge. The story of these crimes is finely told by Gibbon (ch. vi.). Papinian's son, a quæstor, was also murdered. As he had held high office for more than 30 years, he must have been much beyond middle life at his death.

By universal consent, Papinian was the greatest of the Roman jurists. He is spoken of by the ancients in vehement superlatives; and by Cujacius, who himself has a place in the Calendar beside Grotius, Papinian is called "the greatest lawyer that ever has been, or will be: amongst jurists what Homer is amongst poets." By the famous "Law of Citations," where the legal authorities were equally divided, the opinion of Papinian was to prevail. The moderns are equally clear as to his great superiority. His reputation is based not simply on his learning and acuteness, but on his eminent political services, his stainless character, his courage, his magnanimity of spirit, and his uniform tendency to uphold the highest moral standard. It is in the decisions of Papinian, especially, that we see how Roman

law ultimately developed a truly spiritual power. His style is very close, concise, sometimes obscure, and less Roman in form than that of other great jurists. There are in the *Digest* 600 extracts from Papinian—not, however, a fourth part of those from Ulpian, and hardly one-twelfth of the whole. But they are all stamped with the same breadth of judgment and moral dignity. [F. H.]

ULPIAN (*Domitius Ulpianus*), **d. 228 A.D.**

ULPIAN, the second authority amongst the Roman jurists, was of a Tyrian family, and, like his friend, colleague, and predecessor Papinian, was probably of Syrian birth, and possibly a professor at Beyrout. These two great jurists were, therefore, fellow-countrymen with the founders of Christianity. Ulpian was assessor in his office with Papinian under Septimius, and subsequently held offices under Caracalla and Elagabalus. He was appointed Governor of the City under Alexander Severus (222), and he filled under that Emperor the same place that Papinian had occupied towards Septimius Severus, nearly 20 years earlier. He acted as wise counsellor and guide to the noble young Emperor who follows him in the Calendar, the last of the great Antonine succession. And like his predecessor Papinian he was murdered, by the mutinous Prætorian Guard, whom his civil reforms had irritated. The *Digest* contains 2464 extracts from Ulpian, which occupy one-third of the entire work. His style is easy and pure, but rather more diffuse than that of Papinian and the earlier jurists. His vast knowledge, good sense, and immense industry place him amongst the first of the jurists. The *Digest*, as to one-half, consists of extracts from Ulpian and his colleague Paulus.

Papinian and Ulpian alone represent that grand succession of jurists which, in the ancient world, took the place of the spiritual power, just as Grotius and Cujacius alone represented the modern jurists in the week of Leibnitz. The long series of the scientific lawyers of Rome lasted at least six centuries : from the age of Cicero to that of Tribonian (60 B.C. to 560 A.D.). Its most brilliant epoch was from the beginning of the 2nd century to the first half of the 3rd century—from the age of Hadrian to the death of Alexander Severus (235 A.D.) —the great period almost closing with the pupils and successors of Papinian, until the age of Justinian, three centuries later. From the death of Pliny and Tacitus, early in the second century, the whole literary force of the ancient world passed into the development of law. And law also absorbed and assimilated the spirit of the Stoic morality, which alone supplied the place of a spiritual education until the Christian time. The Roman law has formed the basis of almost every system of civilised jurisprudence both in the mediæval and the modern world, except that of the English common law, which it

indirectly affected. It is still the essential substance and the typical standard of law as a system. And all ages and races have joined in celebrating its wisdom, its symmetry, its universal power, and its moral elevation. [F. H.]

Gibbon : ch. xliv. H. T. Roby : *Introduction to the study of Justinian's Digest.* T. C. Sandars : *The Institutes of Justinian.*

ALEXANDER SEVERUS (*Alexianus Bassianus, afterwards Marcus Aurelius Alexander Severus*), **b. 205, d. 235 A.D.**

From the accession of Commodus the Empire was on the downward path. But the gallant stand of M. Aurelius had checked the barbarian rush while the effects of the pestilence were still fresh ; and there was order within and security from without under the strong rule of Septimius Severus (193-211 A.D.). During the first half of the 3rd century the chief element of danger seemed to lie in the pretensions of the army, which had been taught by Severus to consider itself the source of sovereignty. All previous Emperors had laboured to make it feel its subordination to the civil power.

On the assassination of the effeminate Elagabalus (222 A.D.), his cousin, ALEXANDER SEVERUS (24th Emperor), then only 16, was raised to the throne by the Prætorian Guards. He was a Syrian by birth, and grand-nephew of the wife of Septimius Severus. His mother, Mamæa, governed at first in his name, and always continued to have great influence over him. Alexander was intelligent, virtuous, and devoted. In conjunction with the great lawyer Ulpian he laboured at reforms of all kinds in law, administration, and public morals. Pure by temperament, and of religious disposition, he was attracted by Christianity, then rising into importance, and was desirous that Jesus should be worshipped with other gods. But a Roman Emperor needed to be made of sterner stuff. He was unable to prevent the Prætorians from murdering Ulpian in his presence. A war against the Persians, which he conducted in person, and not without success, did not increase his hold over the soldiery ; and though he managed to quell a mutiny at Antioch, he fell a victim not long afterwards to a military conspiracy, while preparing to take the field against the barbarians on the Rhine. [E. S. B.]

Dion Cassius, viii. Gibbon, ch. vi. vii. *Pos. Pol.* iii. 335.

AËTIUS, b. towards end of 4th Century, d. 454 A.D.

Towards the end of the 4th century, the Huns, a Mongol race, pressed upon the Teutonic peoples, and it was this pressure which drove them in such numbers to seek refuge within the Empire. The Teutons respected Roman civilisation, and eagerly embraced it. The Huns were nomads and pure destroyers. In the middle of the

5th century their king Attila, "the scourge of God," was encamped in Hungary, from which he overran Germany, and made incursions into the Empire. In 451, when Valentinian III. was Western and Marcian Eastern Emperor, he invaded Gaul at the head of a host of Huns and tributary Germans.

AËTIUS was the son of a Scythian (Polish ?) general in the Imperial service. His mother was an Italian lady of high rank. He himself, during his chequered career, had resided for some time in the camp of Attila. He had risen by his military ability, his personal prowess, and also by intrigue, treachery, and rebellion. After killing his rival Bonifacius in single combat, in 432, he became minister and general of Valentinian III., and from that time till his death, in 454, he was the pillar of the tottering Empire. The Teutonic bands—Goths, Burgundians, Franks, and others—established in Gaul were regarded, and regarded themselves, as irregular troops in the service of the Emperors. They had come in not as invaders, but by permission of the Emperors who needed such soldiers. They were commanded by their own chiefs or kings ; but these were, and considered themselves, officers of the Emperor, and they could always be depended upon to resist invaders from beyond the Rhine. It was at the head of a force composed mainly of such elements that Aëtius advanced to meet Attila. So great was the terror inspired by the Huns, that all his exhortations had hardly prevailed on the Visi-Gothic King Theodoric to march up his men from South Gaul. Attila raised the siege of Orleans at his approach, and fell back on Châlons-sur-Marne, followed by Aëtius. There was fought the great battle which decided the question whether the Empire was to dissolve into its component nationalities by spontaneous disintegration, or to be broken up by foreign invaders. It was not a struggle between rival races. The two armies consisted of much the same elements, for Aëtius too had Huns in his service. It was the old struggle between the dwellers within the Empire and the dwellers without—a difference in comparison with which all characteristics of race, language, or religion were insignificant. The battle raged all day with tremendous slaughter. The Goth Theodoric fell by the hand of a Goth in the service of Attila. Night separated the combatants while victory still remained doubtful. But as the Huns continued their retreat into Germany, "the last of the Romans" had gained his object. Four years later Valentinian murdered him with his own hand.

[E. S. B.]

Gibbon : ch. xxxiii.-xxxv. *Pos. Pol.* iii. 392.

TRAJAN (*Marcus Ulpius Trajanus*), b. 52, d. 117 A.D.

With the Empire the ancient world entered on its best and happiest period. This was the consummation which alone could justify so much bloodshed, so many conquests and extinctions of national

independence. The first and immediate gain was the "Roman Peace," reigning eventually from the Clyde to the Euphrates—a blessing never enjoyed before or since. The second was, that it became possible for a universal religion to arise in place of the national religions of antiquity. The third was a certain assimilation of the nations of the West, and the establishment of the Latin language as a medium of communication and culture—advantages which remained when the political union came to an end. This threefold result belongs to the first four centuries of the Christian era; for when we date from the birth of Christ we are really dating from the first Emperor. If the rule of the Emperors is the crown and consummation of ancient civilisation, the 85 years of Nerva and his four successors show that rule at its best. Accordingly all these Emperors find a place in the Calendar.

TRAJAN (13th Emperor), the greatest of them, was a native of Spain, for Italy was no longer the mistress of the Empire, but only its central province. He was in his 45th year and commanding the army of the Lower Rhine when, by the death of Nerva, he became sole Emperor. He was not a creative genius like Alexander or Cæsar. But he was a born ruler of men, equally great as a soldier and administrator, with a high ideal of duty, firmly relying on himself and knowing how to make use of others. In short, he had all the qualities most valuable in a statesman when nothing new is wanted but only that the existing system shall be made the best of. Like Vespasian, he held that economy was the first condition of good government. To impress this on others, he caused the daily cost of his journey to Rome, on his accession, to be placarded in every town through which he passed. The populace of the capital crowded the streets and house-tops to await his entry. They saw no gorgeous procession, no chariots, not so much as a horse; but only a tall, powerful man, with a remarkably upright figure, and head prematurely blanched, on foot, accompanied by his wife and some private friends who had gone out to meet him. When we remember what this man was—that as master of the civilised world he was exalted to an immeasurable distance above all his subjects; that for dignity, power, and ability to do good or mischief his position was incomparably superior to that of the greatest modern sovereigns—we can hardly avoid drawing some comparisons between the simplicity which seemed right to the one and the display of pomp and luxury which are indispensable to the others.

Trajan's whole reign was in harmony with this opening scene. Of his twelve predecessors, seven, if not eight, had perished by murder or suicide. But Trajan habitually walked about Rome unattended, like any private citizen. Without any new taxation he found money for many grand public works and two great wars. He had very enlightened notions as to free trade—such, in fact, as we hardly find again before Turgot. By rescinding the laws which prohibited corn-growing countries from exporting elsewhere than to Italy, he

so stimulated their production that corn was cheapened in Italy itself. From his correspondence with Pliny, the Governor of Bithynia, we get some idea of his wonderful industry and minute acquaintance with the details of administration everywhere (see under *Ancient Philosophy* § PLINY THE YOUNGER). Pliny wants to regulate everything on the Italian pattern. Trajan gently checks his zeal. "Let the people alone," he says; "do not interfere with their customary rights of self-government. See that no new local taxes are imposed, and that there is no waste or jobbery; but otherwise let them manage for themselves." This indeed was the general spirit of provincial government under the Empire.

But it is as a conqueror that Trajan is most famous. Under him the Empire attained its greatest extent. Every northern nation incorporated by Rome became a new element of strength, being so much force transferred from the side of barbarism to that of civilisation—a result which does not accompany British conquests in Asia. The Dacians (Roumania and Transylvania) had long been troublesome neighbours. In six years of war on a great scale Trajan subdued them. So thoroughly were they Romanised, that their descendants still speak a Latin language. In three more years of war the formidable Parthian monarchy was overthrown, and the Roman arms were seen for the first and last time on the Persian Gulf. In his march back through Mesopotamia, Trajan was wounded as, at the age of 65, he headed the assault on an Arab fortress. Quitting the army, he bent his steps homewards, but died on the way of a complication of disorders. His last service to his country was to nominate Hadrian as his successor. The customary form of acclamation at the accession of a new Emperor came to be: "Mayst thou be more fortunate than Augustus and better than Trajan!" Dante tells how his release from Hell was granted to the earnest prayers of Pope Gregory the Great. [E. S. B.]

Dion Cassius: lxviii. Pliny: *Panegyric and Epistles*, x. By far the best account, in small compass, of the Imperial period is Dr. R. Congreve's *Roman Empire of the West*.

CATHOLICISM.

AS the story of the rise and growth of the Christian Church is commonly told, it appears, and is intended to appear, miraculous. A few fishermen gather round a teacher by the lake of Galilee. The teacher dies, rises again to life, ascends to Heaven, and is adored as God. His disciples and those who accept their teaching form a society, the extension of whose influence throughout the world is the central fact in the history of man.

Our task is to look at this narrative from a human point of view: to translate miracle into evolution; to regard the establishment of the Christian Church, not as the sudden unexplained apparition of a new force, but rather as a link in a long chain of events. For us it ceases to be the central point towards which all that went before and all that follows is to converge; we look upon it as a further stage of preparation for the final reign of Humanity.

The result of Hellenic thought and of Roman conquest was the establishment of that progressive civilisation which we distinguish as European or Western from the more stable and conservative societies of the Eastern World. But the result has been achieved at a great sacrifice. To bring about the universal peace which prevailed through the shores of the Mediterranean at the time of Augustus, the independent life, institutions, and faiths of nations had been crushed. The intellectual movement carried on by Hellenic thinkers had been for centuries dissolving the ancient faith still more surely. Pythagoras and his followers had foreseen the process of decay, and had vainly striven to arrest it. Later thinkers had resigned themselves to the dissolving forces: some content to waste themselves in fruitless discussion; others absorbed in researches—general like those of Aristotle, special like those of Archimedes—which were to prepare the way for positive reconstruction in a distant future.

Thus of the three elements of human life, moral, intellectual, practical, the last two had been stimulated to extreme and one-sided development at the expense of the first. Focussed in the two cities of Alexandria and Rome, Greek thought and Roman statesmanship were dominant in the Mediterranean. But at what cost? Local institutions had been everywhere crushed into imperial uniformity. The national gods destroyed one another by

mutual contact. There was wise and peaceful official administration: there was a high standard of æsthetic and scientific culture. But moral life, the life of conscience and duty, was deeply tainted.

It remained, then, that the renewal of this inner life should become for a time the object of efforts as concentrated and as exclusive as under Greece and Rome had been the life of intellect and of practical activity. For a time the highest energies of Humanity were to be absorbed in the culture and discipline of the Heart; and to effect this discipline was the work of Catholicism. It could not be the final phase of history; for the problem of restoring Thought and Activity to their rightful though subordinate place would still remain; and for this the Catholic doctrine was incompetent. The restoration of the final harmony was reserved for Positivism.

The first condition of moral government was the acceptance of Monotheism. Intellectually it raised more difficulties than Polytheism: since Omnipotence and Omniscience could never be reconciled with the existence of evil. But it was far more favourable to spiritual discipline than the creeds in which each impulse was stimulated by its own deity. From the time of Socrates and Plato belief in one God had been widely spreading. In Aristotle's hands, God was little more than an expression for Universal Law. The imperial unity of Rome tended to the recognition of similar unity in the court of Heaven. And these tendencies were quickened by the contact of Alexandria with Jewish Monotheism; although Philo's commentary on the Hebrew Scriptures, forcing the anthropomorphic God of the Jews into conformity with the spiritual Deity of Plato, shows that in this respect Greek thought gave more than it received.

The essential contribution of Judea to the Roman world was not the monotheistic theory, but the fervid sense of right and wrong which inspired the Hebrew prophets. From the 8th century B.C. onward, a series of remarkable men arose in Palestine whose teaching was a direct appeal to conscience apart from external law, institution, or ritual. Breaking through the bonds of nationality or of theocratic observance, they upheld a God to whom burnt-offerings and feast-days gave no pleasure, who delighted only in righteousness and mercy, who abhorred the oppressors of the poor and needy. The loss of national independence, through the successive domination of Assyrian, Greek, and Roman, had served but to concentrate more strongly the aspirations of these men on the spiritual empire which a divine deliverer would one day arise to establish.

There was thus in the Græco-Roman world, together with much need for moral regeneration, much preparation for it. Roman conquest and Greek speculation had swept away many obstacles, and had brought together many materials for reconstruction. New Pythagorean associations were rising, stirred by traditions of their great founder to attempt a reorganisation of life. Stoic schools

proclaimed the worthlessness of the goods of this world, upholding righteousness as the sole aim, and maintaining the universal brotherhood of man. In the teaching of Epicurus there was a spirit of gentle kindliness, best expressed in the well-known maxim that to do good was happier than to receive it. And in aid of all these spiritual influences there was the unifying, organising power of Roman government, obliterating barriers between nations and promoting their intercourse.

It remains to say a few words on the disposition of names in the month dedicated to St. Paul.

The first week is given to the systematic consideration of Catholic doctrine during the first four centuries. It should be taken in connection with the week of Plato in the month of Aristotle, which illustrates the part taken in this work by the philosophy of Alexandria. The presiding personage is St. Augustine, round whom are grouped the principal Fathers of the Church.

The second week, that of Hildebrand, records the political institution of Catholicism, beginning with Constantine, continued by Theodosius and the first Gregory, and culminating with the final establishment of the Papal power under Gregory the Seventh.

The third week is devoted to the organisers of monastic life: the great reservoir of moral force during the earlier part of the middle ages. How effectively the force thus stored up could be used is shown in the life of St. Bernard, who presides over this week, and of St. Benedict, with whom it opens.

The fourth week represents Catholicism in its decline. Absorbing no longer the governing energies of society, it yet retained the important function of controlling and stimulating moral life in the social mass, until the new and final faith should prevail. The presiding type is Bossuet, the champion of Gallican independence, since the time for subjection to papal supremacy was past. The founder of Jesuitism is here subordinated to the noblest of his followers. Protestantism is represented by the purest of its sects, whose social utility was kept wholly free from worldly ambition.

It will be noted that in each week of this month one or more illustrious women are commemorated. The devoted mother to whom Augustine owed his conversion: the peasant girl who protected Paris: the glowing tenderness of Heloïse, held higher even than the inspirer of Dante's vision: the sublime mystic of Spain: each in her own week finds fitting place. [J. H. B.]

Phil. Pos. v. 54. *Pos. Pol.* iii. 336-420. P. Laffitte: *Le Catholicisme.*

ST. PAUL, 64 A.D. (?)

A Jew by birth and by religion, a recipient of Greek culture, and a Roman citizen, PAUL had founded his first hopes for the regeneration of the world on the extension of Jewish Monotheism: purified perhaps as we now see it in the teaching of Philo, but retaining every essential feature. The rising sect of believers in the resurrection of Jesus appeared to him a mischievous perversion which he strove to crush. But there came a day when this enthusiasm presented itself to him, after a fierce internal conflict, as the channel through which his highest hopes for humanity were to be realised. With sublime abnegation he surrendered himself to the movement avowedly its servant, but in reality its leader. Christianity, which but for him would have remained Judaic or Syrian, assumed henceforth a wholly new character. It became the regenerating force of the Roman Empire and of its northern invaders.

Rightly to judge of St. Paul's work, we must look at the books of the New Testament by the light of recent scientific study, defining, so far as may be, the date and the authenticity of each. Ranged in chronological order, they fall into four groups:

1. The authentic epistles of St. Paul, especially those to the *Galatians*, *Corinthians*, and *Romans*, written at some date prior to Nero's persecution, 64 A.D., in which probably St. Paul perished.

2. The *Apocalypse*, the date of which is fixed, by the evident reference to contemporary history in chapter xvii., at 69 A.D.

3. The Synoptic Gospels of St. Matthew, St. Mark, and St. Luke, together with the *Acts of the Apostles*, written at some time between the taking of Jerusalem and the end of the 1st century.

4. The Fourth Gospel, attributed to St. John, and the other epistles, written not much before the middle of the 2nd century.

It is essential to remember that during St. Paul's lifetime the Gospels did not exist. His letters contain but few details of the life of Jesus. The Christ, as he constantly maintained, had been specially revealed to him. The Gospel which he preached was not "after man." For, he says, "I neither received it of man, neither was I taught it, but by the revelation of Jesus Christ."

The teaching of Paul, aiming at a universal religion, was thus fundamentally different from that of the earlier disciples of Jesus, for whom Christianity was merely a new offshoot of Judaism. From this difference a fierce struggle arose, the traces of which are visible in the vivid and authentic narrative given by St. Paul himself in his letter to the Galatian Church. The story of his conversion told there by himself differs widely from the account given in the *Acts*. We see in it that from the first he regarded his mission not as Jewish, but as universal. After his conversion a long interval of three years elapsed during which he held entirely aloof from the body of disciples of Jesus in Palestine. He then came to Jerusalem

for a fortnight, and saw Peter and James ; but with these exceptions the other Christian groups in Judea did not even know him by sight. He did not visit Jerusalem again for fourteen years.

There is thus a long period of seventeen years during which St. Paul worked alone ; and these are the decisive years in the history of Christianity. All that distinguishes a world-religion from a national sect had by that time been worked out. The crucified and risen Redeemer was for all men, not for the Jewish tribe alone. Jew and Greek, Roman and barbarian, all stood on the same footing. A new society was founded, knit together by other ties than those of nationality, aiming at purity and righteousness, and inspired by hopes of the speedy coming of Christ. That hope remained unrealised : but the Catholic Church was established. Henceforth there was a new power in the world, modifying the political forces round it, governed by new principles and aiming at new objects. A spiritual power, wholly independent of the State, forming opinion and moulding character, but not claiming to interfere with practical government, arose for the first time in the world's history. The doctrine on which it rested was not such as to satisfy the claims of science. But the importance of this new growth, politically speaking, was immense. It corresponds to a permanent need of human society. To satisfy it in ways consistent with scientific and industrial progress is the principal problem which Auguste Comte attempted to solve.

What St. Paul founded was a Church. He established a community wider than the Family or the Country, accepting and confirming the closer and narrower ties, but uniting families and nations under the common headship of Christ. The vague benevolence that would ignore the claims of relationship has no place in his teaching. He dwells often on the mutual duties of parents, children, and servants. For his own nation he had a passionate affection. He held the law of Rome in profound respect. His teaching was real, human, genial. His picture of the loving, charitable temper, upheld by him as the highest spiritual gift, is perhaps the noblest ideal ever presented to man. And with all this he knew how to exercise stern spiritual authority when need was. It is important to notice that, though Catholic dogma was to undergo much further development in succeeding centuries, the central institution of Catholicism, the Eucharist, was brought by him into full prominence.

Thus the Christianity of Paul and that of the Jewish Christians at Jerusalem had little in common but the name. The former was a universal religion, the latter a Hebrew sect. The epistle to the *Galatians* and the opening chapter of the *Apocalypse*, in which Pauline practice is attacked under reference to Balaam, and the sect of the Nicolaitans, reveal the full extent of the antagonism. The strife lasted long. It was reconciled at last by the triumph of St. Paul's principles and the complete suppression of his

personality. Each succeeding version of the life of Jesus became less Jewish and more universalist. None of these biographies assumed their present shape till after the taking of Jerusalem—forty years at least after the events which they narrate. That of *St. Matthew*, which is perhaps the earliest, speaks much of the intention of Jesus to fulfil the Jewish law. But these intentions are omitted from the Gospel of *St. Luke*, which is far less Jewish in tone. The book of the *Acts*, by the same author, shows strong tendencies to reconcile opposing parties, and to attribute to Peter, as in the story of Cornelius, the teaching specially characteristic of Paul. Finally, towards the middle of the 2nd century, Pauline teaching, systematised by Alexandrine modes of thought, assumed its decisive form in the Fourth Gospel, strangely attributed to the fanatical author of the *Apocalypse*. Here the universality of Christianity is fully enunciated, and its principal doctrines assume their definite shape.

St. Paul's life of toil and peril through the coasts of Asia Minor and the Greek peninsula was brought to a close in Rome : whither he had been taken in consequence of his appeal to the imperial court against Jewish fanaticism. Here he probably remained until, A.D. 64, he fell among the victims to the savage cruelty of Nero, recorded by Tacitus. By common consent, his name for nearly two centuries fell into the shade, while his teaching and his work prevailed. When the time came for the consolidation of Christian doctrine in the century of Ambrose, Athanasius, and Augustin, his exceptional position was more fully recognised. But it was reserved for our own time to raise him to his right place as the true founder of Catholicism. [J. H. B.]

P. Laffitte : *Le Catholicisme*, pp. 37-74. *Pos. Pol.* iii. 345-347, 362-364. F. C. Baur : *Paulus* (Eng. trans., 1873) on which the above account of St Paul, written in 1890, was based. In the half century since Baur wrote, critics have found reason to doubt many of his conclusions, and the dates and authorship of the *Epistles*, *Acts*, and *Gospels* have been assigned to different epochs and persons. See, T. Whittaker : *The Origins of Christianity, with an outline of Van Manen's Analysis of the Pauline Literature.* For a more conservative view, see *Encyclopaedia of Religion and Ethics*, Art. " Paul." According to tradition St. Paul's body is in St. Peter's at Rome, his head in St. John Lateran.

ST. LUKE, 1st Century A.D.

LUKE is named in three of the Epistles which bear St. Paul's name, and purport to have been written from Rome (*Philemon* 24 ; *Colossians* iv. 14 ; 2 *Timothy* iv. 11). He is also thought to be referred to in 2 *Corinthians* viii. 18, 19, as " the brother chosen of the Churches to travel with us." We may then consider Luke, " the beloved physician," to have been the faithful companion and fellow-labourer of the founder of Catholicism, especially during his mission in Rome. Nothing more of Luke's life is known, but his " relics " were translated by Constantine from Achaia to Constantinople. By tradition he was the author of the Third Gospel

and the *Acts of the Apostles*. The Third Gospel, by whomsoever written, is Pauline (universal) in tendency (Baur's *Church History*, i. 77); moreover, the magnification of the Virgin-Mother is a unique feature which proved of high Catholic service. The *Acts*, a very imperfect performance, seems designed to level up the claims of St. Peter to the catholicising initiative which belongs to St. Paul: it could not have been the work of Paul's devoted friend, familiar with the memorable personal history recorded by the Apostle himself in his letter to the *Galatians*. In the pageant of the Church seen by Dante in the terrestrial Paradise, St. Paul and St. Luke walk together (*Purgatory*, xxix. 133-141). [V. L.]

See under St. Paul. According to tradition, the relics of St. Luke are now at Padua.

ST. JAMES, 1st Century A.D.

According to Western tradition, the Writer of the Epistle which bears the name of *St. James* was James the Apostle, the son of Alphæus, "the Lord's brother," who is said to have become the first Bishop of Jerusalem, and to have suffered martyrdom by stoning. Probably, however, the Epistle is of later date.

Recognising the Pauline doctrine of Justification by Faith, the Epistle insists upon the practical counterpoise: "Faith, if it hath not works, is dead." Exhortations to an empirical morality were of themselves altogether insufficient for the work of moral reorganisation, but St. Paul's doctrine of Faith in Christ, the free gift of divine grace, which became the indispensable dogma of the Church, being necessarily absolute, was very liable to abuse, and constantly required checking both by priestly discretion and popular good sense. Of such a corrective this Epistle was a useful and gracious type. [V. L.]

F. C. Baur: *Church History*, i. 128-130. According to tradition, the relics of St. James are in the Church of St. Sernin at Toulouse.

ST. CYPRIAN THASCIUS (*Thascius Cæcilius Cyprianus*), b. abt. 200, d. 258 A.D.

CYPRIAN was a rich man in middle life, and a professor of rhetoric at Carthage, when he was converted by an aged presbyter named Cæcilius: almost immediately afterwards he was elected Bishop of Carthage (248). His Christian career only extended to ten or twelve years. When the Decian persecution broke out (250), Cyprian fled from Carthage, and for a year and a half exhorted his suffering flock from a place of concealment: this conduct drew upon him the censure of the Roman clergy. Upon the persecution abating, Cyprian returned to Carthage, and vigorously administered his diocese and the African Church.

Among other conspicuous acts, when a terrible pestilence visited the city he generously succoured the sufferers, Christian and heathen alike. In 256 the persecution was again renewed by the Emperor Valerian, and Cyprian was banished to Curubis, a place on the coast, 40 miles from Carthage. When he was permitted or required to return, he was ordered to sacrifice to the heathen deities: he refused, whereupon by the proconsul's command he was beheaded in the presence of a great multitude, in a field outside the city. Cyprian is thus famous as a martyr.

He was also a distinguished spiritual statesman. The African Church throughout its short career took a foremost part in founding the general order of the Western Church. Cyprian followed Tertullian, whom he ever called his master, and was followed by the great Augustine. As regards the controversies of his day, Cyprian pursued a lenient but measured policy towards the "*lapsi*,"—those namely, who, having renounced their faith under the pressure of persecution, penitently desired to return to the fold: on the other hand, he steadily refused to recognise baptism by heretics—a decision which provoked a sharp conflict with Pope Stephen, and was finally overruled by the Church under the teaching of Augustine.

Cyprian's most important service was a general one—the energetic assertion of the episcopal authority, which was so essential to the inward and outward power of the Church. In his view (as his strenuous part in opposing the Novatian schism shows), each bishop, once duly chosen and consecrated, had divine command over his flock—those who persisted in refusing obedience to their bishop not even martyrdom could purge: on the other hand, all bishops were co-ordinate; Stephen was to him no bishop of bishops, but bishop of Rome and "his brother."

Cyprian wrote a celebrated tract on "the Unity of the Church"; the conditions of spiritual union are therein only vaguely stated, submission to episcopal authority excepted; but the affectionate quality of Catholicism is finely marked (see his praise of the symbol of the Dove), and the necessity of unity is imperiously expressed: "He cannot have God for his Father who has not the Church for his Mother." Cyprian's relics were obtained from the Sultan by Charlemagne, brought to France, and afterwards placed in the Abbey of Compiègne. [V. L.]

Pontius the Deacon: *Life of Cyprian*. E. W. Benson, Archb.: *Cyprian, his life, his times, his work*. Fleury: *Ecclesiastical History*, bks. vi. vii. Gibbon: *Decline and Fall*, ch. xvi. J. C. L. Gieseler: *Ecclesiastical History*, vol. i.

ST. ATHANASIUS, b. 296, d. 373 A.D.

ATHANASIUS, the greatest of the Greek Fathers, was a native of the city of Alexandria, then the headquarters of speculative theology. After some ascetic training under the Coptic anchorite St. Anthony

(whose life he afterwards wrote), he became secretary and archdeacon to Alexander, the metropolitan Bishop ("Pope") of Alexandria. Almost his earliest appearance in the Christian arena was at the Œcumenical Council of Nicæa (325). Though only an archdeacon, Athanasius proved the leading spirit of the Council, and triumphantly upheld against Arius and his followers the unity, the consubstantiality (Ὁμο-ουσία), of the Father and the Son. This mysterious dogma was then no learned fancy. Combined with the theory of Christ's perfect manhood, it was an imaginative creation of Humanity, necessary to the intimate efficacy of the Christian doctrine, as instituting a "complete identity between the adorer and the adored" (*Pos. Pol.* iii. 384), of which the Eucharist became the highest expression.

No less necessary was it to the power of the Catholic hierarchy, who thus "derived from no mere prophet, but came under a divine head" (*Pos. Pol.* ii. 94; iii. 343, 387). It led, as a consequence, even "to the establishment of the Papacy as the supreme European authority" (*Early Essays*, p. 117). Moreover, "a divine mediator pointed indistinctly to the growing tendency of Humanity to find its highest providence within itself" (*Pos. Pol.* ii. 94).

In the year following the Council, Athanasius succeeded to the Alexandrian See, then the most important in the Church. This post he held, with many external interruptions, until his death, beloved by his clergy and people to enthusiasm. His long heroic life was spent as a vehement champion of the Catholic cause, during the critical time when Catholicism was openly wrestling in East and West with Paganism, but especially with the deadly Arian heresy. Jerome, speaking of this time, and especially of the Council of Rimini (360), says "the whole world groaned, marvelling to find itself Arian."

Athanasius suffered deposition by various Councils both in East and West, and was several times expelled from the throne by Imperial order—by Constantine upon his Arian relapse, by Constantius the Arian persecutor, by Julian the Pagan, who termed him "the enemy of the gods," and finally by the Arian Valens. He passed altogether 20 years in exile or as a fugitive: of these, two (336-338) were spent at the court of the orthodox Constans at Trêves, three (343-346) in the Vatican at Rome, and six in the deserts of the Thebais, where he was hunted continually for his life, but protected by the devotion of the monks. On the other hand, Athanasius had his great moments of triumph, as when he returned time after time from exile, and especially when he confirmed Jovian in the Christian faith. He died in peace: his body was brought to Constantinople, and in the 15th century to Venice.

Discerning the right doctrinal path, whence his title "The Father of Orthodoxy," and showing inflexible courage against all enemies ("Athanasius against the world"—Hooker's *Ecclesiastical Polity*) Athanasius was in his time the director, almost the Dictator, of the

Church. His biographer, Gregory Nazianzen, says that "he united in himself the various attributes of all the heathen gods." We should especially mark his appeal to the whole Church—to the East, and even more to the West, by whose support he mainly triumphed. Greek prelate as he was, he even directly furthered the ecclesiastical supremacy of Rome, as in the Council of Sardica (347), where the Roman See was declared the future Court of Appeal to all bishops on trial. He also, upon his visit to Rome, introduced Monasticism into Western Christendom.

The theological works and pastoral epistles of Athanasius form three folio volumes. He was not the author of the "Athanasian Creed," which follows (but in Latin) the terms of the Council of Chalcedon (451), and was probably of much later date; but, as Gibbon says, "his immortal name will never be separated from the Catholic doctrine of the Trinity, to whose defence he consecrated every moment and every faculty of his being." [V. L.]

Fleury: *Ecclesiastical History*, bks. x.-xvi. J. Kaye: *Council of Nicæa*. Gibbon: *Decline and Fall*, ch. xxi.-xxv. R. D. Hampden: *Bampton Lectures*, lect. iii. For the Athanasian Creed, see *Encyc. Brit.*, Art. *Creeds*.

ST. JEROME (*Hieronymus*), b. abt. 346, d. 420 A.D.

EUSEBIUS HIERONYMUS SOPHRONIUS, known to us as JEROME, was born of Christian parents at Stridon, a suburb of the great city of Aquileia, which before his death was laid in ruin by the Goths. He completed his youthful education (363-367) in Rome, then still splendid and more than semi-Pagan: he also studied at Trêves, the seat of Valentinian's empire. The next six years were spent in ascetic retirement in his own home at Stridon.

In 373, "tearing himself from his friends for the kingdom of heaven's sake," Jerome went as a pilgrim to Antioch, and became a hermit in the desert of Chalcis. He has recorded his penitential sufferings, his ecstasies and dreams: he was not idle, however—he learnt Hebrew and studied the sacred texts, also took part in several controversies. After four years in this wilderness, Jerome returned to Antioch, where he was ordained priest rather against his will—a monk, he said, he would ever be: he never consecrated the Eucharist.

In 379 we find him at Constantinople, helping Gregory of Nazianzus (Basil's friend) in his struggle with the Arians; he outstayed the triumphant Council of 381 (Gibbon, ch. xxvii.). From Constantinople, Jerome went to Rome with his friend, Bishop Paulinus, to attend the Western Council summoned by the Emperor Gratian (382). Marcella, the leader of the ascetic party, received him into her palace on the Palatine, and Pope Damasus appointed him secretary to the Council and also his own secretary. In Rome Jerome remained nearly four years. Spiritual director of the ascetic

party and especially devout ladies, he was also their vehement patron, and the fierce, often coarse, denouncer alike of Pagan pride and clerical corruption. On the death of his friend and patron Damasus, Jerome quitted Rome and proceeded to Palestine (385). At Antioch he was joined by his beloved disciples, Paula and her daughter Eustochium, noble and learned Roman ladies, who brought with them a train of virgins. As venerating pilgrims they visited the Holy Places at Jerusalem and the extraordinary monastic communities of Egypt: they then returned to settle in Bethlehem. Close to the great church which Helena, the mother of Constantine, had built over "the Cave of the Nativity," Paula founded two monasteries for virgins, one for men under Jerome's rule, and a guest-house for pilgrims. Jerome had besides a cave for himself: this was his dwelling-place during the remaining thirty-four years of his life. It was, he says, "the paradise of his studies."

In this cave he composed his great works, and sent forth his fiery criticisms against Pelagius and other adversaries. Once he was compelled to fly with all the pious colony to the coast to avoid the threatening Huns; once he had to defend them by force, and even retire awhile from a band of ferocious Pelagianising monks; and in the year 410 his studies were broken by care for unhappy fugitives from burning Rome. In the main, however, his life was one of incessant literary activity for the Church and affectionate communion with Paula and Eustochium. They both died before him: his letter on the death of Paula is a deeply interesting record in several respects. Jerome himself died in 420: his tomb and their tomb, as well as his cave, are now shown adjoining the crypt of the Nativity.

Jerome was a mighty figure in the imagination of the Middle Ages as the great eremite, pilgrim, and dweller in holy shrines, who *there* translated the sacred Scriptures into the sacred and universal Latin tongue. In many a picture we see him in the wilderness, beating his breast with a stone to subdue the flesh; the tame lion at his feet marks his conflict and victory, his book betokens his scriptural lore, his cardinal's hat the posthumous honour of the Church. Among Jerome's works the most valuable are his letters, commentaries, and lives of illustrious saints: above all, his noble version of the Old and New Testaments, called the Vulgate, an extraordinary achievement. This version, superseding more ancient translations, served for centuries (and still serves) the doctrine and devotion of the Latin Church, and was a precious instrument of Catholic unity. [V. L.]

Fleury: *Ecclesiastical History*, bks. xvii.-xxiv. J. N. A. Thierry: *Life of Jerome*. T. Hodgkin: *Italy and her Invaders*, bk. i. R. D. Hampden: *Bampton Lectures*, lect. i. *Dictionary of Christian Antiquaries*: art. VULGATE. Mrs. Jameson: *Sacred and Legendary Art*, vol. i. There is a complete edition of St. Jerome's works by Erasmus.

ST. AMBROSE, b. abt. 340, d. 398 A.D.

AMBROSE, second of the four chief Latin Fathers, was son of the Prefect of Gaul. He received a legal training in Rome, and, becoming a distinguished advocate, was appointed Consular Governor of the Milanese province. In 375, while holding this command, he was suddenly, though still unbaptized, called to be bishop of Milan by acclamation. This great office he filled through stormy times under various sovereigns—Valentinian, Gratian, Valentinian the younger and his mother Justina, Theodosius, and Honorius.

In the *Confessions* of Augustine, whom he converted and baptized (387), we have a picture of his ordinary episcopal life, full of affectionate energy. He was indeed a pillar of Catholic orthodoxy and spiritual authority; he had perhaps in excess the credulous imagination without which Christianity could never have been; and although he condemned persecution on one memorable occasion —that of the Priscillianists—he was a great persecutor. He was also a fervent patron of celibacy, asceticism, and the new monastic institutions; he himself had a monastery outside Milan, "full of good brothers." Jerome even says—though this is an exaggeration—that he brought the whole of Italy to the true faith. By the temporal princes Ambrose was extraordinarily honoured; he was even on several high emergencies employed by them as ambassador. To them he was the Great Priest ("*Ecce Sacerdos Magnus*"): one cause of their trust being that, in the words of his contemporary biographer, "fearing God, he never feared to speak the truth to kings."

For Gratian, who loved and revered him as a father, Ambrose wrote a treatise on the Trinity, and another on the Holy Ghost; he counselled his orthodox legislation, and appeared before him (as afterwards before Valentinian and Theodosius) as the Christian champion to uphold the removal of the statue of Victory from the Roman Senate-house. To the Arianising regent Justina, Ambrose refused to give up a single church; ordered by her to quit Milan, he boldly refused, and, supported by the people, made good his refusal. Augustine relates how on this occasion Ambrose, holding his cathedral like a besieged fortress with his flock for garrison, Monica among them, introduced for their encouragement the Eastern practice of singing hymns, which thus came to be established in the Western Church.

Upon the murder of the young Valentinian by Arbogastes, Ambrose had to retire for a while till the avenger Theodosius came. The highest fame of Ambrose rests upon his relations with that great sovereign, whose drastic legislation against Arian heresy and heathen worship he prompted; but whose wrong-doing he fearlessly rebuked, and who himself said of him, "I have seen no bishop but Ambrose." The picture of the Christian bishop repelling from his cathedral

the lord of the whole Roman world for a cruel act of government, and the repentant Emperor submitting (390), was always an inspiring memory to the mediæval priesthood. Ambrose was buried in the church at Milan which still bears his name. In mediæval art he figured continually as one of the Doctors of the Church, bearing in his hand a triple thong. Besides many other works, Ambrose was the author of Latin hymns, some of which survive and are in constant use. [V. L.]

Paulinus the Deacon : *Life of Ambrose* (written by order of St. Augustine). Fleury : *Ecclesiastical History*, bks. xvii.-xx. Gibbon : *Decline and Fall*, ch. xxvii. xxviii. Mrs. Jameson : *Sacred and Legendary Art*, vol. i.

ST. MONICA, b. 332, d. 387 A.D.

MONICA represents the feminine domestic piety which, spontaneously leaguing itself to the priesthood, gave from the first profound help to the Catholic cause (*Acts* xvi. 14, 15 ; *Romans* xvi. 3, 4). She stands happily here between Ambrose, whom "she loved as an angel of God," and her illustrious son Augustine, whom she brought into the Catholic fold, "bearing for him," as he says, "more mother-pangs in the spirit than she had done in the body."

Her life and character are enshrined in Augustine's *Confessions*. Born of a pious Catholic family near Carthage, and severely disciplined in childhood, Monica married Patricius, a small burgess of Tagaste (Tajelt), where she became mother of Augustine (354) and two other children. The family was Latin, but Patricius was a Pagan and, though good-natured, choleric and licentious. Monica by sweet forbearance kept the family concord unbroken ; eventually she made the whole household Catholic, including Patricius himself. He died in 371.

Henceforth a widow, Monica gave herself wholly to her children and pious duties. From scruples then common, she had not baptized Augustine, but with a mother's heart she had planted in his soul religious sympathies deeper than he knew. He was now studying rhetoric at Carthage, and she strove with holy tenderness to keep him faithful and pure. Augustine loved his mother, yet he tried her sorely : he lived with a concubine ; he joined the Manichæan heresy. He records his mother's tears and fervent prayers for him ; her visions also, especially one "God-sent," which gave her calm and lasting assurance, for it announced to her, "Where thou art, there too shall he be."

Augustine had always been a student. In his 20th year he was deeply moved to reflection by reading Cicero's *Hortensius*. He now (376) became professor of Rhetoric, teaching first in Tagaste and then at Carthage. In 383, eluding his mother, he went to Rome, and thence as official professor to Milan. Monica, undaunted, followed him across the sea. At Milan she was soon a devoted

member of Archbishop Ambrose's flock, serving the altar morning and evening. In turn she won Ambrose's admiration as a Christian mother. By this time Augustine had abandoned Manichæism, but was halting dissatisfied in academic scepticism; meanwhile he was a friend and hearer of Ambrose, and had become a catechumen in his church. At last both his intellectual and moral difficulties were overcome, and he surrendered himself finally to the spirit of St. Paul.

Monica's life-effort was now fulfilled; she had the triumph of seeing her son baptized in Milan on Easter Day, 387. On this occasion, so momentous to the future of Catholicism, was produced, according to mediæval tradition, the noble hymn, "*Te Deum laudamus.*" As Augustine came up out of the water, he and Ambrose, it was said, uttered verse and verse antiphonally, "as the fervent grace of the Holy Ghost wrought in their souls and informed their tongues." Deeply, also, did the holy mother share in her son's spiritual raptures at this period. He especially describes an ecstatic conversation which proved to be the last. This was at Ostia, where his mother was about to embark with him for Carthage. A few days later she was seized with fever, and there died. She had longed to be buried by her husband's side in Africa, but her last words to her sons were these: "Lay my body where you will. This only I ask of you, think of me at the altar of God, wherever you may be." The lovely figure of Monica ministering to her majestic son received due honour in mediæval art. [V. L.]

Augustine: *Confessions.* St. Monica's remains are in the Church of Sant' Agostino at Rome.

ST. AUGUSTINE (*Aurelius Augustinus*), b. 354, d. 430 A.D.

This week commemorates the rise of the Catholic Church, and especially the formation of its doctrine. The founders of Catholicism necessarily took the means for the end, and ascribed divine verity to their creed, which however was always the weakest element of the system. In the new Testament we see the dogma fluent: it was gradually most skilfully shaped, often under the pressure of heretical attack, to fulfil the intimate aim of Catholicism, the development and discipline of the feelings under the direction of a universal and independent priesthood wielding sacramental power. In accordance with Catholic tradition, AUGUSTINE presides here.

The true inheritor of St. Paul, to whose authority he constantly appeals, Augustine was the great confessor and standard-bearer of the faith when the temporal Empire broke. He more than any other man made "Holy Mother Church" supreme in the West, expounded the Catholic doctrine as a whole, and delivered it formed and armed to the mediæval time. Catholic authority he systematically upheld, even to the point of persecution, and saying of himself: "I should not have believed the Gospel truth had not

the authority of the Catholic Church constrained me"; but his overflowing sympathy with the innermost needs and desires both of the individual soul and of Christian society made his works the armoury in after ages for Christian disputants of every kind. He writes as a Latin rhetorician, yet with poignant touches of the familiar and affectionate mediæval spirit.

The history of his life up to the year 387, and especially of his spiritual debt to his mother Monica and to Ambrose, is narrated in the preceding article. Returning to Africa in 388, Augustine went into monastic retreat for three years; in 391 he was ordained presbyter, and in 395 elected Bishop of Hippo (now Bona), a town on the coast 150 miles west of Carthage. This provincial post he held 34 years: from it he watched over all Christendom, and virtually directed the Church. His labours for Catholic unity were of every kind: preaching, administering, attending councils, composing treatises, adjudicating private differences, and corresponding with ecclesiastical and temporal authorities.

He waged an arduous conflict against all enemies of the Church, especially: (1) the *Manichæans*, who "by arresting the concentration of Polytheism at the stage of dualism—that is, of two divine principles, good and evil—did more than any other heresy to retard the progress of Catholicism" (*Pos. Pol.* iii. 365). (2) The *Donatists*, who claimed to reject at their own discretion any ordained priest on the pretext of personal unworthiness. These violent purists were irreconcilable to Catholic order. Against them, as schismatics, Augustine used more than argument. He demanded and accepted the forcible aid of the temporal power, justifying himself by Christ's words. "Compel them to come in" (letter to Count Boniface, *Ep.* 220). The success of the experiment led him to declare the general value of coercion as an instrument in the cause of orthodoxy. (3) The *Pelagians*. These were premature Humanists, who denied the descent of Adam's original sin, and asserted human virtue almost independent of divine grace: they thus evacuated the whole scheme of redemption in Christ, and cut away the very ground of the priesthood. This controversy, for his part in which Augustine was afterwards called "The Doctor of Grace," fully developed the Catholic theory of human nature and man's salvation, and largely also that of the sacraments.

Augustine died at Hippo in 430, in the third month of its siege by the Arian Vandals, who afterwards took and destroyed the city. His name has always received the highest honours of the Church. Dante gives him one of the most exalted places in heaven (*Paradise*, xxxii. 35). In mediæval art, when the principal subject is the glory of Christ or the coronation or assumption of the Virgin, the four Doctors of the Church, Augustine chief, attend with their books as witnesses and interpreters. His tomb, a noble monument of the 14th century, is at Pavia, whither his remains had been removed from Sardinia in the 8th century by Luitprand, king of the Lombards.

The works of St. Augustine extend to many folio volumes. Those chosen for the Positivist Library are :—(1) The *Commentary on the Sermon on the Mount*, composed by Augustine while yet a presbyter (393). (2) The *Confessions*, composed 400 A.D. This little book, still widely read, is a retrospect of Augustine's pre-baptismal life, and especially of his own mind and feelings, conceived as a continuous thanksgiving to God, the author of all good. It thus strikes the true Catholic note, the supremacy of affection (*Pos. Pol.* iii. 355). Hence mediæval painters, adopting his own words, "Thou didst pierce my heart with the arrow of thy love" (*Conf.* ix. 2), represented Augustine as carrying in his hand a heart transfixed by an arrow. Intimately connected with this general topic, and illustrating also one of the most essential services of Catholicism to civilisation (*Pos. Pol.* iii. 369, 379), is an admirable record of his conquest over sexual desire. (3) *The City of God*, composed 413-426 A.D.

The grandeur of the occasion on which this book was conceived, and of its general subject, is unsurpassed in literature. In 410 Rome was taken and sacked by the Goths under Alaric. The wail sent up from the Empire included the indignant complaint of many that the public disasters were due to the forsaking of the ancient gods. Thus the whole issue between Polytheism and Catholic Monotheism was raised before a world-wide audience, deeply interested and deeply excited. Augustine "outflaming with zeal for God's house," stepped forth as the champion of Catholicism, and produced this monumental work.

He takes for his main theme the contrast between the temporal empire of Rome and "the most glorious City of God"—that is, the Church, "here militant, hereafter triumphant" (*Ephesians* ii. 19-22). He reviews the secular and sacred history of man. Just the judgment could not be, for to Augustine the Roman gods were demons. Yet he honoured Roman virtues. And if *The City of God*, disparaging human science and human achievements, manifests to us now the ingratitude of the Church to the past, and her intellectual, practical, and moral insufficiency towards the full social problem, yet figuratively it announced that problem ; and it seemed to rally, as to a victory-giving standard, the distracted peoples of the 5th century : it held up to their abhorrence the corruptions of the Pagan Polytheism that was passing away, it compelled their love and admiration for the grace of the new faith, that was destined to blend with the life of defensive warfare, and thus guide human Order and Progress for several centuries (bk. xix. ch. xvii.). [V. L.]

Possidius : *Life of Augustine.* J. M'Cabe : *St Augustine and his Age.* Card. J. H. Newman : *Hist. Sketches*, i. P. Alfèric : *L'évolution intellectuelle de St. Augustin du Manichéisme au Néoplatonisme* (1919). Fleury : *Ecclesiastical History*, bks. xviii.-xxiv. Gibbon : *Decline and Fall*, ch. xxxi. xxxiii. J. C. L. Gieseler : *Ecclesiastical History*, vol. i. R. D. Hampden : *Bampton Lectures.* Guizot : *Civilisation in France*, lect. v. T. Hodgkin : *Italy and her Invaders*, bks. i. and iii. Mrs. Jameson, *Sacred and Legendary Art*, vol. i. S. Dill : *Roman Society in the Last Century of the Roman Empire*, which shows that the Paganism described by Varro and attacked by Augustine in his polemic was long obsolete, and that the mentality of the Pagans of Augustine's own day was not very different from that of the contemporary Christians.

CONSTANTINE (*Flavius Valerius Aurelius Constantinus*), **b. 274, d. 337 A.D.**

The father of CONSTANTINE was the Illyrian, Constantius Chlorus, who under Diocletian's fourfold distribution of the Empire became sovereign of Gaul, Spain, and Britain (capital Trêves): his mother was Helena, an innkeeper's daughter. In 306 Chlorus died at York, naming Constantine, who was then with him, as his successor; this choice was ratified by the army. Constantine was already a distinguished soldier. He soon conducted vigorous campaigns against the barbarians (he gave the captive Frankish chiefs to the wild beasts at Trêves); but these wars, and even the great ruinous civil wars which made him, first, master of the West (312), and then sole ruler of the whole Empire (325), can only be simply mentioned here, in order to mark his transforming measures of civil and ecclesiastical policy, which were characteristic of the 4th century, "the doubtful borderland linking or separating Antiquity and the Middle Age."

As Catholicism, Humanity's predestined growth, was essentially incompatible with the Roman Empire, which was in deep decay, the statesman's task was to pave the way for the one, and to protect and smooth the decline of the other. To abolish the Prætorian soldiery, and separate military from civil command, was to abate Rome's pride and to guard against intestine war. Far more, the founding of Constantinople (328) as the future seat of government—the New Rome—while a most wise measure for the safety of the Eastern provinces, was a decisive abandonment of the past, a marked step towards the final separation of the Roman dominion into East and West. Rome continued to be the citadel of the ancient Paganism under the patronage of the Roman aristocracy until their ruin by Alaric, when the field of the West became open to the supremacy of the Church. Thus, in Dante's regretful words, the Emperor "that he might give place to the Shepherd [*i.e.* the Pope] made himself a Greek" (*Paradise*, xx. 57).

Similar in its ultimate results was Constantine's general policy towards Christianity. At the commencement of the 4th century Catholicism was a proscribed sect; at its close it was the sole religion in the Empire permitted by law. Such a force must have found issue, and Constantine showed himself a statesman in recognising and adopting it. He never was a devout Christian: to the last he paid some official honour to the heathen gods, and he was only baptized on his deathbed (by an Arian); but he saw that the persecuting policy of his predecessors had failed, and that the only safe course for his dominion holding together at all was to incorporate into the State this resolute and organised Christian minority.

Accordingly, in 311, he put forth with Galerius and Licinius a first act of clemency: and in 313 he issued with Licinius the Edict of Milan, an act of general toleration towards the Christian and all

other religions, restoring also to the Christians their temples. This policy was soon extended to the whole Empire. Passive toleration, however, is not a thing that can last. In his final conflict with Licinius, Constantine figured as the Christian champion against Paganism; and after his victory he proceeded, says Augustine, "to build a spiritual State, fellow to the Roman Empire, as it were Rome's own daughter" (*City of God*, v. 24). He relieved the Church lands from the ordinary tribute and allowed legacies to be left to Church purposes, released the clergy from municipal offices, sanctioned their disciplinary and judicial powers, and built many Christian churches. To obtain practical unity (for he thought even the doctrine of the Trinity a trifling matter), Constantine summoned (besides several synods) the Œcumenical Council of Nicæa (325), which produced the Nicene Creed. Over the Council he (unbaptized) presided in person; at its conclusion he took strong measures against the condemned sects. Later on he was induced to banish Athanasius as a seditious person.

The latter years of Constantine were sullied by cruelty to his family. He died at Nicomedia, and was buried in the Church of the Apostles at Constantinople: the figures of the Apostles were planted around his tomb, while the Roman Senate gave him divine honours. His baptism by Pope Sylvester and donation of the patrimony of St. Peter, which were so long devoutly believed, were the invention of a much later age. [V. L.]

J. B. Firth: *Constantine the Great* (1905). *Cambridge Medieval Hist.*, vol. i. J. B. Bury: *A Hist. of the Later Roman Empire*, bk. ii. ch. 5. Fleury: *Ecclesiastical History*, bks. xii.-xiv. J. C. L. Gieseler: *Ecclesiastical History*, vol. i. Gibbon: *Decline and Fall*, ch. xiv. xvi. xviii. xx. xxi. H. H. Milman: *Latin Christianity*, bk. i. ch. ii. F. C. Baur: *Church History*, part v. 2. R. Congreve: *Roman Empire of the West*, lect. 3. *Pos. Pol.* ii. 386, iii. 331, 390, iv. 326.

THEODOSIUS (*Flavius*) THE GREAT, b. 345, d. 395 A.D.

THEODOSIUS the Great was the son of Theodosius the Elder, an illustrious general. He early won fame as a soldier; but upon the disgrace and execution of his father (376), he retired into privacy near Seville, his native province. When, however, the Eastern Emperor Valens and two thirds of the Roman army were destroyed by the Goths at Hadrianople, Gratian, Emperor of the West, summoned Theodosius as the fittest man to meet the public peril, and invested him with the Eastern Empire (379).

In four campaigns Theodosius skilfully concluded the war, but was obliged to allow the settlement of the Goths in the Roman dominion as armed allies. In 387 he made war upon Maximus, who, having murdered Gratian, had afterwards usurped Italy; defeated him; and, entering Rome in triumph, took in charge—he was the last to do so—the whole Roman world (388). After three year's liberal administration of Italy, Theodosius returned to Constantinople, generously leaving the young Valentinian on

the throne of Milan. But in 392 Valentinian was murdered by Pagan conspirators; Theodosius thereupon again marched into Italy, and overthrew his heathen adversaries at Aquileia (394). A few months afterwards he died at Milan. "The genius of Rome expired with him" (Gibbon).

The predecessors of Theodosius, Valens and Constantius, had been Arians; Constantinople was the chief fortress of Arianism; Arians held the episcopal palace, the cathedral, and all the churches. But in the first year of his reign Theodosius was baptized in the faith of the Trinity. "Glowing from the font," he issued his celebrated decree, in which he declared that all his subjects should be "Catholic Christians," branding all dissidents as infamous heretics, and threatening secular penalties. He proceeded to eject the Arian prelates and their congregations, seated Gregory Nazianzen on the archiepiscopal throne, and summoned the General Council of Constantinople (381). This Council finally established the doctrine of the Trinity, re-enacting the Nicene Creed with added particulars respecting the Holy Ghost, the general purpose of which was "to perpetuate the relation effected during the temporary incarnation" (*Pos. Pol.* iii. 384. Hampden: *Bampton Lectures*, lect. iii.). Theodosius altogether promulgated at least fifteen most severe decrees against the ministers, the assemblies, and the persons of the heretics.

He was no less energetic against Paganism. All Pagan rites were prohibited, even the worship of household gods. Sacrifices were declared high treason, and throughout the Empire the heathen temples were ordered to be systematically destroyed, many of them splendid and beautiful examples of Grecian architecture. Counselled and approved by the leaders of the Church, this wholesale violence must be charged to the absolute spirit of Monotheism, which condemned all its predecessors. But like the pangs of the conquered nations that were involved in the establishment of the Roman peace, it was inevitable, and also indispensable "to protect the new faith from the dangers of discussion, against which it was always powerless" (*Pos. Pol.* iii. 391). Moreover, though Paganism was to be extirpated as a religion, a measure ("*dose fondamentale*") of Polytheism was being received into Catholic worship in the invocation of saints, prayers for the dead, and the adoration of shrines and relics.

The later ecclesiastical adviser of Theodosius was Ambrose; to whom also he rendered an extraordinary act of submission, accepting public exclusion from the services of the Church for eight months, in penance for the massacre which, by his command, had been inflicted on the citizens of Thessalonica (390). Theodosius thus anticipated mediæval discipline. [V. L.]

Augustine: *City of God*, bk. v. ch. 25, 26. Fleury: *Ecclesiastical History*, bks. xvii.-xix. Gibbon: *Decline and Fall*, ch. xxvi. xxvii. xxviii. T. Hodgkin: *Italy and her Invaders*, bk. i. R. Congreve: *Roman Empire of the West*, lect. 3. *Pos. Pol* iii. 391. Theodosius was buried in the Church of the Apostles at Constantinople.

ST. CHRYSOSTOM, b. 347, d. 407 A.D.

John of Antioch, called after his death CHRYSOSTOM, or "the Golden-mouthed," from the sympathetic character of his eloquence, was the son of the military commander in Syria. Losing his father in infancy, he was brought up by his mother, the pious Anthusa. He became a distinguished pupil of the celebrated Libanius, and commenced an advocate's career. This path, however, he soon quitted, to pursue the call of religion. Having received baptism, he for several years practised ascetic life in his mother's house, and in 374 entered a monastic community amid the mountains near Antioch. In this cœnobite discipline four years were spent, and then two years in a solitary cave. In 381, Chrysostom was ordained deacon in Antioch, and in 386 presbyter, serving always in his native city, but earning wide renown as a preacher. Such was his fame that in 398, by order of Eutropius, the minister of the Emperor Arcadius, he was suddenly and secretly carried off to Constantinople, to be made Archbishop in the imperial capital.

Here he declared the priesthood to be in dignity above royalty; and protested to the Emperor against giving up a single church to the Arians. Amid the court and people he stood forth conspicuous in word and deed for orthodoxy and severity of life, as among the clergy for ecclesiastical discipline. His unsparing rebukes of fashionable vices from the pulpit brought upon him the enmity of the Empress Eudoxia. By her and Theophilus, Archbishop of Alexandria, a conspiracy was organised; a packed synod deposed Chrysostom, and the feeble Arcadius condemned him to perpetual exile (A.D. 403).

Two days after the sentence he was, indeed, gloriously recalled upon the popular demand; but on a fresh pretext he was banished to Cucusus, a lonely place among the mountains of Taurus, whence, however, for three years he continued with faithful zeal to administer his diocese by letters. But his enemies unrelentingly pursued his ruin: an order was now obtained that he should be marched under military guard to Pityus, on the north-east shore of Pontus, "the last frontier of the Roman world." Chrysostom expired on the way at Comana (A.D. 407). Thirty-three years afterwards his remains were brought in pomp to Constantinople, and deposited in the Church of the Apostles, in the presence of the Emperor Theodosius II. and his sister the pious Pulcheria, who, kneeling before the coffin, prayed forgiveness for their guilty parents. [V. L.]

W. R. W. Stephens: *Life of Chrysostom*. Fleury: *Ecclesiastical History*, bks. xx.-xxiii. Card. J. H. Newman: *Hist. Sketches*, i. Gibbon: *Decline and Fall*, ch. xxxii. Mrs. Jameson: *Sacred and Legendary Art*, vol. i. Chrysostom's Works were edited by Sir H. Savile (1610-13). This is called by Hallam, "The first work of learning on a great scale published in England."

ST. BASIL (*Basilius*), b. 329, d. 379 A.D.

BASIL, an eminent "Greek Father," was born at Cæsarea in Cappadocia, where his father was a wealthy advocate. Having studied (351-355) at Constantinople with his friends Gregory of Nazianzus and Julian, who was afterwards Emperor, he became a teacher of rhetoric in his native city. Then, yielding to the saintly influence of his sister Macrina, he renounced his profession, and went to Egypt and Syria to study monastic life (357). The next year he himself sought a monastic retreat in a beautiful ravine of the river Iris, in Pontus. Here he remained at intervals for some years, and planted several cœnobite convents, giving them a written rule. These monks proved useful in spreading and defending the Catholic doctrine, then in special peril. In 361 Julian became Emperor, and invited Basil to Constantinople.

Basil (who about this date was ordained priest) declined the invitation on account of the Emperor's expressed antagonism to the Christian faith. Two years afterwards Basil was called from his retreat by his friend Gregory to withstand the Arianising policy of the new Emperor Valens in Cæsarea ; and in 370, to the great joy of Athanasius and the orthodox party, he was elected Bishop of Cæsarea and Exarch of Pontus—an immense jurisdiction, comprising eleven provinces and fifty bishoprics. Gregory records how boldly and successfully Basil upheld the independence of the Church against the Prætor Modestus ; "No one has dared to speak thus to me before," said the Prætor. "That," replied Basil, "is because you never had to do with a Bishop."

Basil's episcopate was a continued wrestle with the Arian heresy : before the victory was won he died, prematurely worn out, 379 A.D. For his tract on *The Holy Ghost*, in which he maintained the triune Deity, the Council of Chalcedon named him "the great Basil, the minister of grace, who has explained the truth to the whole world." After his death the Basilian Order spread rapidly through the East and extended also to the West. [V.L.]

Fleury : *Ecclesiastical History*, bks. xv.-xvii. Gibbon : *Decline and Fall*, ch. xxv. xxvii. J. H. Newman : *The Church of the Fathers*, ch. v.-viii. Basil was buried at Cæsarea, Cappadocia.

ST. PULCHERIA, b. 399, d. 453 A.D.

PULCHERIA—Empress, and patroness of the Church—was daughter of the Emperor Arcadius. During the long and tranquil reign of her feeble brother, Theodosius II. (best known for the issue of the "Theodosian Code"), Pulcheria, who was a woman of masculine genius and accomplishments, virtually ruled the Eastern Empire. On his death (450) she chose Marcian, a distinguished general, as

her official husband, and reigned with him as co-empress. Pulcheria rendered eminent services to the Church, which has rewarded her with canonisation. Vowed to virginity, she followed an intense form of piety, built churches and monasteries, and laboured to suppress Paganism and heresy. Above all, she summoned (in Theodosius's name) and carried through, the Council of Ephesus (431), which, condemning the Nestorian heresy, proclaimed the Virgin "Mother of God" (Θεοτόκος); and, in her own name and that of Marcian, the Council of Chalcedon (451), which finally declared Christ to be perfect God and perfect man. These, with the preceding Councils of Nicæa and Constantinople, formed what St. Gregory called "the four-square stone" of the Faith, to be venerated as the four books of Holy Gospel. The Council of Ephesus was suggested by Pope Celestin I.; that of Chalcedon was summoned at the request of Pope Leo the Great, whose legates presided at the Council, and, according to his letter, formulated the decision.

[V. L.]

Fleury: *Ecclesiastical History*, bks. xxvii.-xxviii. Gibbon: *Decline and Fall*, ch. xxxii. xxxiv. xxxvi. St Pulcheria is buried in the Church of the Apostles at Constantinople.

MARCIAN (*Marcianus*), b. abt. 391, d. 457 A.D.

MARCIAN was by birth a Thracian and by profession a soldier. He was sixty years of age when, as stated in the preceding article, he became the husband of Pulcheria and Emperor, and took part with her in summoning the Council of Chalcedon (451). This is his chief title to remembrance, but he was in other respects an excellent ruler. To Attila's demand for tribute he gave the reply: "I have iron for Attila, but no gold." On Pulcheria's death Marcian became sole Emperor. Altogether he reigned seven years. [V. L.]

J. B. Bury: *A Hist. of the Later Roman Empire*, bk. ii. ch. 5.

ST. GENEVIÈVE (*Genoveva*), b. 422, d. 512 A.D.

GENEVIÈVE was the chief patron saint of Paris. Her father was a shepherd, and she was born in the village of Nanterre, at the foot of Mont Valérien, which overlooks and protects the city. In youth she was consecrated to virginity by St. Germanus: she afterwards dwelt in Paris. Among the legendary glories of the patriot saint were her intercession with the frankish king Chilperic for his captives, and her pious influence with Clovis and Clotilda for the building of St. Denis and the Church of St. Peter and St. Paul; but the chief tradition told how, when on the approach of the Huns the citizens of Paris were about to abandon the city, Geneviève persuaded them to remain, herself setting the example by praying many days

in the Baptistry. Such tales mark the first beginnings of Catholic chivalry. The name of Geneviève was for centuries dear to the people of Paris, an imaginative incentive to both heroism and pious tenderness. Thus the dying St. Louis commended himself to her care. Clovis, Clotilda, and Geneviève were all buried in the Church of St. Peter and St. Paul, which afterwards took Geneviève's name and became a famous abbey. In the eighteenth century another grand church was built, dedicated to Geneviève, which in the Revolution was converted into the Pantheon and bore the inscription, "*Aux grands hommes la Patrie reconnaissante.*" [V. L.]

A. Butler: *Lives of the Saints* (3rd January). Mrs. Jameson: *Sacred and Legendary Art*, vol. ii. *Pos. Pol.* iii. 394. *Synthèse Subjective*, p. xv. Geneviève's remains are in St. Etienne du Mont. The Panthéon is once more secularised and the inscription restored.

ST. GREGORY THE GREAT, b. abt. 550, d. 604 A.D.

The fourth of the chief Latin Fathers, GREGORY was the son of a noble and wealthy Roman senator. In early manhood he was made Civil Governor of Rome; but, renouncing worldly honours he took the cowl (575) as a humble monk in the Benedictine monastery which he had himself founded on the Cœlian Hill. From monk he became abbot, was made cardinal-deacon, and sent as the Papal representative to the court at Constantinople (578). Here he remained six years, and then returned to Rome as secretary of the Papal Curia. On the death of Pelagius (590) Gregory was elected Pope by acclamation. After reigning thirteen years, he died worn out by prolonged ill-health and incessant labours. He was buried in St. Peter's at Rome.

The Church has canonised him, and posterity has called him "Great" for his noble character and his illustrious services; he was the Father of the mediæval Papacy. In his time the Greek and Latin Churches were still nominally one; and the Greek Emperor was the nominal Lord of Italy, represented by the Exarch at Ravenna. But the military power in Italy was with the fierce Lombards, who were heathens or Arians. "In this city," wrote Gregory, "we have been living for twenty-seven years encompassed by the swords of the Longobards." War, disorder, pestilence, famine, filled the land. The position was thus one of terrible difficulty, but it gave Gregory, as organ of the rising power, the opportunity for heroic and far-reaching efforts. Amid the decay of all other authorities, Gregory animated the defence of civilisation, and governed the ecclesiastical estates in Italy with admirable wisdom—thus laying the foundation of the temporal power of the Holy See.

His special foes, the Lombards, he finally pacified by effecting the conversion of their king through his wife Theodelinda. To the Greek Emperor, as his official protector, Gregory was always deferential (perhaps too much so to the blood-stained Phocas); but we

hear the rising voice of Papal authority when Gregory remonstrates against the imperial edict forbidding soldiers to become monks, and when he protests against the Patriarch of Constantinople usurping the title of Universal Bishop. That title Gregory disclaimed for himself, and chose the affectionate and not less organic designation, "*Servus servorum Dei.*"

With the Frankish princes beyond the Alps, who as Catholics were his natural allies against the Lombards, and who were destined to be sword and shield to the Papacy, Gregory cultivated a steady friendship. In the Italian Church he was a true master. Towards the laity and especially the poor he was most benevolent; but with the clergy, high and low, he, always a monk at heart, was an austere disciplinarian: he even forbade them the use of heathen literature.

As a preacher, correspondent, and author he was unwearied; among his works was one on *Pastoral Divinity*, long venerated in the Church (translated by Alfred); also *Dialogues* recording the lives and miracles of Italian saints, dedicated to Theodelinda. Gregory systematically carried forward the order and mystical beauty of Catholic ritual, wisely consecrating symbolism and saint-worship; he also founded schools of music and wrote hymns for the Church. One of his appellations was "The Master of Ceremonies." But his most glorious achievement was his extension of the Catholic Faith in the West. Besides converting the Lombard King, he confirmed the new orthodoxy of the Visigoths in Spain; and, sending forth Austin, he brought the remote English into the Catholic fold. On his tomb is written:

> *Anglos ad Christum convertit mente benignâ.*
> The English his kind heart to Christ did win.

His humane spirit is marked by the story (in the *Legenda Aurea*) of his praying for the soul of the righteous Trajan, and gaining his translation to Paradise (Dante: *Purg.* x. 75; *Parad.* xx. 43).

[V. L.]

F. H. Dudden: *Gregory the Great*, (2 vols., 1905). Fleury: *Ecclesiastical History*, bks. xxxiv.-xxxvi. Gibbon: *Decline and Fall*, ch. xlv. T. Hodgkin: *Italy and her Invaders*, bk. vi. F. Gregorovius: *Hist. of the City of Rome in the Mid. Ages* (Eng. trans.), bk. iii. ch. 1-3. Guizot: *Civilization in Europe*, lect. 2 and 3. H. H. Milman: *Latin Christianity*, b. iii. ch. vii. Mrs. Jameson: *Sacred and Legendary Art*, vol. i. *The Dialogues of St. Gregory*, Eng. Trans., new ed. by E. G. Gardner, 1911. *Pos. Pol.* iii. 396. See also ST. AUSTIN.

HILDEBRAND (*Pope Gregory VII.*), b. 1013, d. 1085.

The names in this week illustrate the political history of Catholicism. Like all human institutions, Catholicism must be judged by its mature condition, and allowance made for the stages of growth and decline. Spontaneously arising out of the Roman Empire, whose metropolis and genius for rule it assumed after three centuries of submission and preparation, Catholicism with its absolute creed

and moralising mission aspired to universal spiritual dominion both in space and time, but only availed to form a *Church* for the mediæval feudal world. That world, compounded like Catholicism of Roman and barbaric elements strangely confused, was a dispersed multitude of local systems, each organised in a loose customary order for *defensive* warfare; in virtue of which the prevailing temper, regarding intellectual pursuits as alien and industry as servile, gave itself to the passion of war and individual feeling, but characteristically around its points of order to generous personal and local sympathies. Surrounding, overspreading, interfusing, and qualifying all, the Church was to constitute a general spiritual society embracing all ranks, all peoples; and its practical hope was to moralise every relation of private and public life by a principle of affectionate duty (*Ephesians* iv. v. vi.; Augustine, *de Moribus Ecclesiæ*, ch. 30—a most remarkable passage).

To make good this purpose a corporate priesthood was indispensable—a priesthood independent everywhere of the temporal power, one in doctrine, worship, organisation, and discipline, a sacred army obeying a Supreme Head, the general director of mediæval society: no otherwise could the Church have obtained or kept spiritual authority over its turbulent subjects. For though normally supported by the secular feudal chieftains, without whose help it could not have existed, it was by its very duty often brought into antagonism with them. By women and the people it was for the most part beloved as their natural protector. Its proudest name was "Holy Mother Church." With a concentrated monotheist creed, the Priesthood could not help asserting very absolute claims. Hence came the intense forms of spiritual command, in the name of the omnipotent God and His Judgment now and to come—forms well suited to compel obedience from credulous minds; but hence also innumerable difficulties both with society and individual souls—theocratic encroachments, intellectual and moral extravagances, consecration of violent or crooked means:—in short, the ever-recurring difficulty of accommodating a very absolute doctrine to a world where all is relative: and herein lay the task for the wisdom of the sacerdotal class.

The habitual violences of the time, however, entailed a compromise of the main principle of Catholic polity. The Church could not live upon mere goodwill and the passing donations of the faithful. To hold his own among the greater princes, the Pope became himself a temporal sovereign: thus much was necessary, also some local ecclesiastical endowments; but the immense and always-increasing possessions of the Church perpetually excited opposition without and bred corruption within.

Hildebrand's career lay in the first of the three centuries which fulfilled the maturity of Catholicism. He found the field prepared by the labours of a thousand years. The doctrine and worship of the Church were almost complete, awaiting their last perfections,

the paramount adoration of the Virgin and the glory of sacred art. The ranks of the clerical order, including the monastic class, were fully established and their normal functions prescribed. The West was relieved from the interference of the Eastern Church and Court, and from further northern invasions; the feudal system was taking shape as the common polity; the Catholic faith prevailed without rival everywhere, the Pagan shores of the Baltic and Moorish Spain excepted; and the Papacy was enthroned in the sacred city of the world, furnished with potent though imaginary title-deeds, and endowed with an ample patrimony under the nominal protection of a Holy Roman Emperor and all Christian Princes: the Pope's divine commission was undoubted though its limits were undefined.

But the actual work of both Church and State was full of dangers and immense and scandalous disorders. Islam was still threatening to overwhelm the West; the European populations, and especially their leaders, were everywhere addicted to violence: and crippling all purer influence were the perpetual twin abuses, both irrepressible by mere local action—the moral laxity of the clergy and the usurpations of the secular chiefs on the officers of the Church. The great need was a dauntless spiritual commander to take and establish supreme control at the very centre.

The celibacy of the clergy, which was almost indicated by St. Paul, and was soon adopted by the Fathers of the Church as consonant to their absolute creed, was—notwithstanding its moral perils—a necessity for the fulfilment of Catholic aims. Linking them to their sacramental office, it hallowed the clergy as a class apart, devoted them to the Church, and exalted their moral power in the general imagination. No less a guarantee could have kept the ranks of the priesthood open to all, or even have saved it from becoming an hereditary caste: no less renunciation could have disciplined it within for its arduous conflict without, especially its struggle against sexual licence, which was to be grappled with in the confessional. But in the eleventh century many priests and even bishops were married, and very many had concubines.

Again, as the Church held everywhere vast estates, secular princes claimed as of right to confirm the election of bishops and abbots, often to appoint them, and even to invest them with the sacred emblems of ecclesiastical consecration—the ring and the crozier. Scandalous traffickings in holy offices—simony—had long abounded as a system. The Pope himself was more or less at the mercy of the Tuscan aristocracy, and of the Emperor, whose predecessors had both appointed and deposed Popes, and who claimed to confirm every Papal election. Against all this Hildebrand was to fight. There was to be a War of Investures: he was to defend the liberties of the Church, and prove her spiritual sword against an Emperor in arms. In mediæval imagination this Emperor was not merely a titular prince, but (little as he deserved to be so considered) the

special representative of the majesty of the Roman Empire and universal temporal power (Dante : *De Monarchia*).

HILDEBRAND was the son of a carpenter at Soano, near Siena. As a boy, he was trained in the convent of St. Mary on the Aventine at Rome, where his uncle was abbot ; when he reached manhood he became a Benedictine monk at Cluny—austere among the austere. In 1049 he accompanied to Rome the Pope-elect, Leo IX., and was appointed abbot of the Monastery of St. Paul.

As Archdeacon of Rome and Chancellor, Hildebrand virtually directed the conduct and succession of the Holy See through the reigns of five Pontiffs, during the eventful years 1048-1073. His counsel probably moved Leo IX. to excommunicate the Greek Church (even in St. Sophia itself), and to consecrate the Norman kingdom of Apulia. As Legate of Victor II. he held the Council in France which deposed forty-five bishops for simony. His name is attached to the Lateran Council of Nicholas II., which effected the momentous change in the mode of Papal election, getting rid of the turbulent popular element ; and through him and Damiani the Lombard Church was reduced to obedience. And in the name of Alexander II. he upheld against the German sovereign the liberty and purity of the Church, and the obligation of the marriage vow ; sent the conqueror of England his consecrated banner ; and required his archbishop to come to Rome for the *pallium*.

On the death of the last-named Pope (1073), Hildebrand was elected to succeed him, and took the name of Gregory VII. : he sought and received confirmation from the youthful Emperor Henry IV. Without delay he proceeded to issue edicts against the incontinency of the clergy and against simony, writing circular letters to all bishops. These decrees provoked much discontent and some disturbances. The Emperor affected compliance, but did not comply. Hildebrand summoned him to Rome. Thereupon Henry called a Council and deposed Hildebrand. In reply Hildebrand summoned his Council and calling St. Peter, the Mother of God, St. Paul, and all the saints to witness, in the name of the Trinity he pronounced the Emperor deposed, and absolved his subjects from their allegiance (1075). He also urged the German princes, who were already in rebellion against Henry, to elect a new Emperor. This brought Henry to his ever-memorable act of humiliation to the Papal See. Crossing the Alps with the Empress, he sought an interview with Hildebrand, who was then a guest of his faithful protector Matilda, Countess of Tuscany, in her castle of Canossa in the Apennines. Hildebrand refused to see him. Three days the Emperor stood in the snow at the castle gate, barefoot, in his penitential shirt and fasting. On the fourth day (25th January, 1077), at the intercession of Matilda, the Pope admitted him to his presence and absolved him, but on promise to appear before a Council for judgment, and in the meanwhile to lay aside kingly crown, title, and functions.

Henry broke all his promises; and the war continued both in Germany and Italy. In 1081 Henry set up an anti-Pope, and marched into Italy with an army. Three years in succession he besieged Rome: at last he took the city, and was crowned in the Basilica of the Lateran by his anti-Pope, who had been previously consecrated there. But Hildebrand remained in possession of the fortress of St. Angelo. Then Robert Guiscard and his Normans came to the rescue; they forced Henry to retire, and entered Rome (burning and plundering a great part of it), and thence they escorted Hildebrand to Salerno; where, having once more excommunicated Henry, the heroic Pontiff died, 24th May, 1085. His last words were: "I have loved righteousness and hated iniquity. Therefore I die in exile." He was buried in Salerno Cathedral. His canonisation was not till 1723.

The conflict of Investitures continued to rage for nearly forty years after Hildebrand's death. It was finally determined by a compromise (Concordat of Worms, 1122): investiture by ring and crozier was reserved to the Papacy, but the beneficed prelate was required to swear temporal allegiance upon the sceptre. The last Papal election also which received Imperial confirmation was Hildebrand's own. His name must always be identified with that great struggle, but his pontifical activity extended to every country in Europe, and to every subject. Comte says he co-ordinated the entire social constitution of Catholicism. He even projected a united effort of martial Christendom to recover the Holy Land, thus anticipating the momentous policy of European defence which found issue after his death.

The core of Hildebrand's action was the aspiration, now renewed by the Religion of Humanity, to subordinate politics to morals. His design, framed upon Catholic and feudal ideals, was to make in solemn form all princes, the Emperor included, spiritual vassals to the Pope, as representing St. Peter, their hands between his hands, with vows of true obedience and liability to forfeiture by Apostolic decree. So exalted and imperial a design, opportune and necessary as it was, could not be carried out far enough, and happily could not be carried out entirely. But as with the Christian dream for universality, the partial success, the noble effort, availed to promote the humanising career of Catholicism. It strengthened the hand of every spiritual authority in Christendom, down to the humblest parish priest, such as Chaucer describes in his Prologue to the *Canterbury Tales*. The Papacy, and with it the Church, continued to advance in plenary power and general utility, culminating in the grand pontificate of Innocent III. [V. L.]

J. W. Bowden: *Life of Gregory VII.* H. W. C. Davis: *Medieval Europe* (Home Univ. Lib.). Fleury: *Ecclesiastical History*, bks. lx.-lxiii. Gibbon: *Decline and Fall*, ch. xlix. F. Gregorovius: *Hist. of the City of Rome in the Mid. Ages*, (Eng. trans.), bk. vii. H. H. Milman: *Latin Christianity*, bk. vii. J. C. L. Gieseler: *Ecclesiastical History*, vol. iii. J. De Maistre: *Du Pape*. P. Laffitte: *Le Catholicisme*, pp. 167-225. *Phil. Pos.* v. 54, pp. 247, 252. *Pos. Pol.* iii. 407.

ST. BENEDICT, b. 480, d. 543 A.D.

Monastic life, extravagant and disorderly in the East, gradually submitted in the West to organisation and discipline, and became for centuries an essential instrument of Catholic polity. Convents were spiritual fortresses of the universal Christian realm, and their inmates, recruited from all classes, claimed to be the especial soldiers of Christ. At their best, monasteries were indeed the venerated abodes of piety and peace, industry and learning, hospitality and charity. To women and the people they were especially attractive by their high appeal to the imagination and their constitution in spiritual equality; by the local nobles and royalty they were in the main cordially supported; while, local jealousies excepted, to the Church authorities, and above all the Papacy, they were intimately bound.

Their greatest utility was in the first period of the Middle Ages, when they were not merely refuges from disorder and examples of united voluntary labour, but also centres of missionary activity. They converted the West. In the second period they served as the training school of the secular clergy, especially upholding celibacy, the vital condition of priestly efficiency. In the last, they produced in chosen souls exquisite expression of meditative feeling, of which the *Imitation of Christ* is the supreme type (compare Chaucer's Prioress: "And all was conscience and tender heart"). At all times, however, and especially after they became rich, monastic societies were infested with very great abuses. Ultimately nothing could save them, since the imaginative faith that had fed them, and the martial life they had been designed to counterpoise, were irrevocably passing away.

Of all the orders the Benedictine was by far the most numerous, and to St. Benedict belongs the honour of having introduced the Rule (*Regula*) into Western Christendom. "From the breast of Benedict," wrote Pope Urban II., "hath poured, as from a fountain of Paradise, the religion of the ordered monastic life." The earliest authority for the saint's life is the sketch given in the *Dialogues of St. Gregory*, which abounds in miraculous incidents. BENEDICT was of noble parentage, and was born at Nursia, in the duchy of Spoleto, in the wild time of the fall of the Empire. His boyhood was spent in Rome; but while still quite a youth he became a hermit in a cavern at Subiaco, in a ravine of the Anio, and won renown for his austerities. When about thirty years of age he was chosen abbot of the neighbouring convent of Vicovaro, and founded twelve small monastic communities around him. He was driven away, however, by the misbehaviour of the monks, and about 528, with his youthful disciples St. Maurus and St. Placidus, took refuge at Monte Cassino in the Abruzzi. Here the saint overthrew a temple and statue of Apollo, converted the heathen population, and founded

the monastery which was destined to be the most famous of all monasteries. Here also he was visited by the fierce Totila ; and in the same year, it is said, in which Justinian published his Code, he composed and promulgated his *Rule*, which rapidly spread through the Western Church, and formed the general type of monastic discipline.

The characteristic requirements of this admirable monument of Catholic constructive genius were : (1) perpetual vows, (2) absolute obedience, (3) the practice of labour : " Laziness," said Benedict, " is the enemy of the soul." Its general tone was reasonable, and above all affectionate, as the opening words intimate : " Hearken, my son, to the precepts of the Master." Benedict died in 543, and was buried by the side of his sister, St. Scholastica (a nun), under the high altar of Monte Cassino. The legends that like an aureole grew around his memory attest his gracious heart and correspond to his gentle name. [V. L.]

Pope Gregory I. : *The Life and Miracles of the Venerable Benedict.* Fleury : *Ecclesiastical History*, bks. xxxii.-xxxiii. J. C. L. Gieseler : *Ecclesiastical History*, vol. ii. Guizot : *Civilisation in France*, lect. xiv. xv. J. H. Newman : *Historical Essays*, vol. ii. H. H. Milman : *Latin Christianity*, bk. iii. Mrs. Jameson : *Legends of the Monastic Orders*, ch. i. Dante : *Paradiso*, xxii. Phil. Pos. v. p. 245. Pos. Pol. iii. 396. For Monastic Life, Montalembert : *The Monks of the West* (Eng. trans.) and F. A. Gasquet : *English Monastic Life* (1904).

ST. ANTHONY (*Antonius*), b. 251, d. 356 A.D.

ANTHONY, the proto-hermit of the East, was a native of Egypt, who lived a long life of solitude in the Thebaid desert : he was a friend and supporter of Athanasius. Monasticism soon became an immense institution in the East, especially in Egypt. Directly, it was injurious to the progress of Christian society by reason of its extravagant fanaticism and lawless violence ; but it served as a general protest, and was the parent of Western monachism. Anthony's example made a deep impression upon Athanasius—who introduced asceticism into Rome, and who wrote his life—and upon the leaders of the Western Church, Ambrose, Jerome, and Augustine ; and his name was never forgotten. Throughout the middle ages he was revered as a saintly pattern of the eremite and ascetic life, a renowned victor over carnal temptation. [V. L.]

Athanasius : *Life of Anthony.* Augustine : *Confessions*, bk. viii. Gibbon : *Decline and Fall*, ch. xxxvii. Mrs. Jameson : *Sacred and Legendary Art*, vol. ii. The relics of St. Anthony given to Jocelin of Dauphiné by the Greek Emperor in 1070, are now at La Motte St. Didier near Vienne, Isère, France.

ST. BONIFACE, b. 680, d. 755 A.D.

In the 8th century, before the coming of the Northmen, the Church which St. Gregory had founded in England was comparatively at rest, and in active correspondence with Rome. But for

the Continent it was a period of dire confusion, from the continued invasions of the Germanic tribes, the Huns, and the Saracens. The rallying-points for future European order were the Papacy and the Mayors of the Palace in the Frankish and Catholic kingdom of Austrasia. These two powers were to be allied and to mutually confirm each other; and the special agents to bring them together were the Anglo-Saxon monks seeking by Papal command help for their missionary labours among Pagan populations across the Rhine.

Chief among such evangelist emissaries was BONIFACE. His original name was Winfried: he was born at Crediton in Devonshire, and became a Benedictine monk at Exeter and afterwards at Nutsell (Netley ?). His missionary work among German Pagans, Hessians, Thuringians, etc., commenced in 715 and continued till his death. Made bishop (and "Boniface") by Gregory II. (723), he was by Gregory III. (732) appointed Bishop of Mentz, Metropolitan and Vicar Apostolic: he founded the Church in South Germany, establishing bishoprics and convents—amongst them Fulda. In 753 the brave old man obtained leave to resign his See and go once more among the utter heathen. Two years later he found a martyr's death among the Frisons.

In this remarkable missionary career we should especially notice:—(1st) Its systematic subordination to the Papacy. On receiving his bishopric, Boniface deposited "on the body of St. Peter" at Rome his oath of fidelity to the Catholic faith and the Pope; and to the same sanctuary he sent a similar profession by the first Council he assembled in Germany. "It was impossible," says Guizot, "more formally to submit the new Church and the new Christian nations to Papal power." (2nd) The diplomatic relations of Boniface with the Frankish Court. In 739 he solicited (unsuccessfully) of Charles Martel aid to the Pope against the Lombards. In 751 he negotiated the decisive mission to Rome, which resulted in the consecration of the Carlovingian dynasty, and the institution of the Papacy as an international power. Some say it was Boniface himself who crowned Pepin King of the Franks at Soissons (752).

[V. L.]

Willibald: *Life*. Fleury: *Ecclesiastical History*, bks. xli.-xliii. J. C. L. Gieseler: *Ecclesiastical History*, vol. ii. Guizot: *Civilization in France*, lect. xix. H. H. Milman: *Latin Christianity*, bk. iv. *Pos. Pol.* iii. 402. Boniface is buried in the Abbey of Fulda. He is commemorated on the same day in the Catholic and Positivist Calendars.

ST. AUSTIN (*Augustinus*), d. 605 A.D.

The mission of ST. AUSTIN to England, then a remote and mainly heathen island, was a very beautiful and characteristic deed of Catholicism. Its author was saint Gregory the Great. A few years before, when a monk in Rome, he had been touched by the

spectacle of some fair English youths exposed for sale in the market-place (*Angli quasi Angeli*), and the afflicting thought that they were Pagans. In the sixth year of his Pontificate (596), though hard pressed by Lombards and many other perils, he sent forth for the evangelisation of England a party of forty Benedictine monks, appointing as their leader Austin, the prior of his own monastery, and recommending them to the Frankish prelates and the Frankish princes to obtain for them safeguard and interpreters. Once Austin turned back; but ultimately, traversing Gaul, he and his band, "the disciples of the blessed Gregory," as Bede calls them, crossed the Channel and landed in the Isle of Thanet.

Ethelbert, the powerful heathen king of Kent, came to receive them: they advanced in procession, chanting litanies and displaying a silver cross and a banner-picture of the Saviour. Having heard the interpreters, Ethelbert gave permission to the strangers to enter his town of Canterbury and preach their gospel. To this he was moved by his wife Bertha, who was a Christian, being the daughter of Caribert, King of Paris, and a descendant of St. Clotilda; she also allowed Austin to officiate in her church of St. Martin. On Whitsunday, 597, the King himself was baptized; thousands of his subjects followed his example. Austin, in pursuance of his instructions, now crossed to France, and was consecrated Archbishop of the English by the Pope's Legate at Arles. Returning to Canterbury, he obtained from the King the site for a church in the town (where the Cathedral now stands), and founded a monastery outside the town, which he dedicated to St. Peter and St. Paul, but which afterwards bore his own name.

The heart of Gregory was delighted with all these good tidings. He wrote to Ethelbert and to Bertha; he reinforced the mission, sending also sacred vessels, vestments, relics, and many books. Austin he appointed Metropolitan, gave him the *pallium*, and designed an episcopate for the whole country. At the same time he furnished remarkable instructions for dealing gently with the native idolatry. By Ethelbert's continued help Austin was now enabled to found the See of Rochester and lay the foundation of St. Paul's Church in London. He also met in grand synod on the Severn, under an oak (which long bore his name), the leaders of the British Church; but they utterly refused to obey him. After seven years' evangelical labours and travels Austin died. He was buried beside the unfinished wall of his monastery in Canterbury. In the twelfth century his bones were removed to the high altar of the cathedral. After his death the Christian mission became involved in sanguinary wars; but the connection of England with the Roman Church and civilisation was established. Before the end of the century the English episcopate was organised by Archbishop Theodore. [V. L.]

Bede: *Ecclesiastical History*, bk. i. ch. xxiii.-xxxiii. J. R. Green: *The Making of England*, ch. v. A. P. Stanley: *Canterbury Lectures*. *Pos. Pol.* iii. 396.

ST. ISIDORE (*Isidorus Hispalensis*), b. abt. 570, d. 636 A.D.

The momentous conversion of the Visigoth kingdom from Arianism to the Catholic faith took political form in ISIDORE'S youth. It was announced in the Third Council of Toledo (589), which was convoked by the youthful king Reccared, and presided over by the Pope's Legate, Leander, Metropolitan Bishop of Seville. This Leander, who was a learned Benedictine monk and a beloved friend of St. Gregory, and who is sometimes called "The Apostle of Spain," was Isidore's eldest brother. The family was of the highest rank, and most devoted to the Church. Isidore received a strict training under Leander, and afterwards, it is believed, became himself a Benedictine monk. On the death of his brother (601), he succeeded to the See of Seville, and held it till his death in 636.

He appears to have been a complete shepherd of the people. His services in carrying forward the evangelising mission and developing the organisation, discipline, and ritual of the Church, and especially the regulation of monasteries, also in promoting learning and assisting secular legislation, were profoundly honoured in after times. The Eighth Council of Toledo, held fourteen years after his death, styled him "the excellent Doctor, the most learned man, given to enlighten the latter ages, always to be named with reverence." Dante places him in the sphere of the sun, the abode of Wisdom (*Paradiso*, x. 131). Isidore's extant works attest his extraordinary encyclopædic knowledge. Besides theological treatises, they embrace works on law, history, languages, and natural philosophy. [V. L.]

Montalembert: *Monks of the West*, bk. vi. Fleury: *Ecclesiastical History*, bks. xxxvi.-xxxviii. Smith: *Dictionary of Christian Biography*. U. R. Burke: *A Hist. of Spain*. His body now lies at Leon in the Church of St. Isidore.

ST. BRUNO, b. 1051, d. 1101.

BRUNO was born of a high family at Cologne; completed his education for the Church at Paris and Rheims; took orders, and was appointed by the Archbishop of Rheims chancellor and director of studies in the diocese. In 1080 the See became vacant, and was offered to Bruno; he refused it, and sought retirement at Saisse Fontaine, near Langres. But he longed for a more austere retreat - the most austere possible; so, taking with him six devout disciples, he sought St. Hugues, Bishop of Grenoble, who guided them to a wild valley high up in the Alps, called La Chartreuse. Here Bruno and his company built their cells and a church, and established the monastery which became so famous (1084). In 1089 Pope Urban II., who had formerly been his pupil, summoned Bruno to Rome to help him. Bruno reluctantly obeyed. Eventually refusing all preferment, he obtained permission to retire and found another

monastery, Della Torre, in Calabria, where he died in 1101. He was canonised in 1514. "The age of Hildebrand was also that of the best attempt to reform monasteries, made by St. Bruno" (*Pos. Pol.* iii. 408). The Carthusian Order followed the Benedictine rule, and continued to be the most severe of all the religious orders ("Mark the Carthusians," wrote À Kempis—*Imit.* i. 25). They especially practised the copying of books. [V. L.]

F. E. von Hurter-Ammann: *L'Église au moyen âge* (French trans.) ii. 396. Mrs. Jameson: *Legends of the Monastic Orders*. He was buried in his monastery, near Squillace in Calabria.

LANFRANC, b. 1005, d. 1089.

A native of Pavia, LANFRANC came to Normandy as a learned scholar, and opened a school in Avranches. In 1041 he took the Benedictine habit in the monastery of Bec, under Herlwin, its warrior founder and first abbot. He became prior, and established the renown of the convent as a place of education (1045-1063). Among his disciples were Anselm and Alexander, who was afterwards Pope.

The reigning Duke of Normandy, William (soon to be conqueror of England), being under Papal ban for his uncanonical marriage, employed Lanfranc as his ambassador to Rome to obtain peace. Lanfranc succeeded, and on his return was advanced by William (1064) to be abbot of the new Abbey of St. Stephen at Caen, the building of which was part of the price of reconciliation. In 1070 William brought him to England to be Archbishop of Canterbury. In this position, the second in the realm, where high qualities of statesmanship were required, Lanfranc rendered most valuable service to William and to the Church. "No one in that time excelled Lanfranc in authority and various knowledge" was the judgment of his contemporary Eadmer. He kept the confidence of his imperious master without seriously offending his spiritual sovereign, Gregory VII.; and, maintaining peace between them, in many ways carried forward Hildebrand's reformation of ecclesiastical and monastic discipline, and confirmed the union of England with the Roman Church. Lanfranc lived into the reign of Rufus. He was buried in the Cathedral of Canterbury, which he had rebuilt.

Whilst Prior of Bec, Lanfranc took active part in the Eucharistic controversy raised by Berengarius, and composed a treatise, long famous in the Church, in favour of Transubstantiation. This imaginative doctrine had been first formulated in the ninth century by Paschas. It was finally sanctioned by Innocent III. in the Fourth Lateran Council, in terms which demonstrate its supreme importance in the Catholic system: "One is the universal Church of the faithful, outside which no one can in any wise be saved. In the which Jesus Christ himself is both Priest and Sacrifice, whose

body and blood are verily contained in the sacrament of the altar under the species of bread and wine, the bread being transubstantiated into body and the wine into blood by divine power, so that to the perfecting the mystery of unity we ourselves receive of His that which He Himself received of ours. And this sacrament none can accomplish (*conficere*) save the priest, who has been rightly ordained according to the keys of the Church, which Jesus Christ Himself granted to the Apostles and their successors." (For the theory of the Eucharist, see Hampden : *Bampton Lectures*, lect. viii. ; and for its power as an instrument of devotion, *Imitation of Christ*, bk. iv. ; *Phil. Pos.* v. p. 270 ; *Pos. Pol.* ii. 109.) [V. L.]

R. W. Church : *Life of Anselm*. E. A. Freeman : *Norman Conquest*, vols. iv. and v. H. W. C. Davis : *England under the Normans and Angevins* (4th ed., 1915).

ST. ANSELM, b. 1033, d. 1109.

ANSELM was born at Aosta, among the Italian Alps. His father was a Lombard, and connected by marriage with the local Counts. A devoted student, Anselm was attracted to the Benedictine monastery of Bec in Normandy by the renown of its Prior Lanfranc. He became a monk there (1060), prior (1063), finally abbot (1078), and carried on with a gentle rule the noble tradition of discipline, learning, and education which Lanfranc had established. In 1093 he was consecrated Archbishop of Canterbury, and received his investiture from the then King, William Rufus. A quarrel, however, soon ensued between them on the great question of allegiance to the Papacy. Anselm gave the King his benediction, took his pilgrim staff and scrip from the altar, and went into exile. He was absent three years (1097-1100) in Italy and France, everywhere receiving saintly honours. On the accession of Henry I. Anselm returned, but announced to the King his resolution to maintain the Roman decree against lay investiture. This entailed a second exile. The dispute was eventually determined, as in the Imperial case [See HILDEBRAND], by a compromise favourable to the liberties of the Church (1107). Anselm died in 1109, and was buried in Canterbury Cathedral. He was canonised by Alexander VI. His fame still continues as a writer of genius, and he has been called the earliest of the scholastic philosophers. He sought to demonstrate the mysteries of the faith by rationalistic argument, especially by his great work on the Atonement, *Cur Deus Homo*. Dante (*Parad.* xii.) places him in the sphere of the sun, the abode of Wisdom.

[V. L.]

Eadmer (a monk of Canterbury, Anselm's disciple and companion) : *Life of Anselm*. R. W. Church : *Life of Anselm*. H. W. C. Davis : *England under the Normans and Angevins* (4th ed., 1915).

HELOISE, b. abt. 1095, d. 1164.

HÉLOÏSE was niece of a canon of Paris named Fulbert, and in youth received instruction in the convent of Argenteuil. When Abelard, the philosopher, came to Paris, Heloise, who had already shown a genius for learning, became his pupil. He seduced her. Heloise fled to Brittany, and gave birth to a son, whom she named Astrolabius. She now submitted to become Abelard's wife, but most reluctantly: she conceived marriage was a disparagement to the inward bond of affection;—and would it not also hinder *his* career? By Abelard's desire the marriage was to be kept secret, but Fulbert divulged it, whereupon Heloise vehemently denied she was Abelard's wife. Fulbert then planned barbarous revenge. He hired ruffians, who broke into Abelard's room at night and deprived him of his manhood. The miserable man, jealous in his misery—it is his own confession—ordered Heloise to take the veil. Heloise proudly obeyed. She went to the altar (she says) with no nun's thoughts: she was Abelard's alone. Abelard also became a monk. Years passed: Heloise became prioress of the Abbey at Argenteuil, then abbess of the Paraclete, a convent which Abelard had built in a wilderness near Troyes and abandoned, and which he now gave to her and her nuns. At length a letter fell into her hands written by Abelard, now abbot of St. Gildas in Brittany: it was addressed to a friend, and recounted the story of his woes, old and new. Then followed a correspondence between Heloise and Abelard, which has made a deep impression on the imagination of the West. It is in Latin, and contains three letters of Heloise. She demands of Abelard spiritual consolation, but, recalling the past, exposes a vast love unsubdued by calamity, separation, and religious austerity. In 1142 Abelard died a penitent monk of Cluny. Heloise obtained his body from the abbot, Peter the Venerable, with a written absolution of all his sins, and buried him in the chapel at Paraclete. Twenty-one years later she was laid in the same tomb, which six centuries afterwards received the following admirable inscription, composed by the Academy:—"* Hic * Sub eodem marmore jacent * Hujus Monasterii * Conditor Petrus Abelardus * Et Abbatissa prima Heloissa * Olim studiis ingenio amore infaustis nuptiis * Et pœnitentia * Nunc æterna quod speramus felicitate * Conjuncti." This tomb (or rather fragments of it, pieced together with altering additions) was early in last century set up in the cemetery of Père La Chaise in Paris: it is constantly visited by lovers. Heloise was thrown away on "the dangerous sophist" to whom she sacrificed herself, and the martyrdom of her life shows the peril of transgressing fundamental social ordinances. But she is commemorated here for her sublimely generous and constant heart—an extreme type of the chivalrous tenderness

which, though it should be mated with Catholic purity, ranks above that precious quality in rich and beautiful services to Humanity.

[V. L.]

J. C. Morison: *Life of St. Bernard*. B. L. H. Martin: *Histoire de France*, vol. iii. bk. xx. P. Laffitte: *Le Catholicisme*, p. 237. *Pos. Pol.* i. 207, iii. 408.

BEATRICE, b. 1266, d. 1290.

BEATRICE was daughter of Folco Portinari, a Florentine nobleman married Simone dei Bardi, and died at the age of 24. Her name ("she who blesses") shines for ever as the beloved of Dante and the inspirer of his great poem, in which she is so conspicuous a figure. The identity, however, of the Beatrice there with the real Beatrice is only partial. In the poem she is glorified in heaven; and the facts of her earthly life so recorded are very few—such as her beauty of body and mind, Dante's boyish passion for her, by her returned with a sort of angelic affection, lastly her death, and the life-long remembrance of her by Dante (*Purgatorio*, xxx. xxxi). Her marriage especially is not mentioned, nor his. The poetical Beatrice, then, though an intensely true character, is yet far more an ideal one. Her office in the poem, and her dominion over Dante's soul, are summarised in his farewell prayer to her (*Parad.* xxxi. 79-93), and in the line much cherished by Comte, in which Dante speaks of Beatrice as "She, who doth my mind imparadise" (*Parad.* xxviii. 3). In this place Beatrice illustrates the power of woman, first duly acknowledged in the Middle Ages, to purify man, and inspire his poetic genius even to the most exalted religious heights—above all, when her spirit has received the consecration of Death. [V. L.]

Dante: *Vita Nuova*, translated by Rossetti: *Divina Commedia*, ed. with *Prolegom.* by Scartazzini, 4 vols., Leipzig, 1874-1890.

THE ARCHITECTS OF THE MIDDLE AGES.

The Middle Ages, in Comte's view, range from the 5th to the 14th century, but the corresponding Art, being slow to take form and slow to part with it, naturally found later limits, beginning about 530, the date of St. Sophia at Constantinople, and extending to the date of the commencement of St. Peter's at Rome (close of 15th century). This period has been well called the Building Age, for cathedrals, churches, chapels, monasteries, castles, municipal edifices, palaces, and civic dwellings, besides bridges, fountains, market-crosses, sepulchral monuments, etc., many of them of imposing or touching beauty, then multiplied in the West. Even humble villages had often majestic churches.

This architecture owed much, technically, to all its predecessors, but it was inspired by Catholic devotion, united to local and family

affection ; hence it worked freely on every scale and for most varied purposes, and delivered an expression of human nature larger, happier, and more benign than any that had preceded. "Never has the power of architecture been displayed to greater effect than in our magnificent cathedrals, in which the spirit of the Middle Ages has been idealised and preserved for posterity. They exhibit in a most striking manner the property architecture possesses of bringing all the arts together into a common centre" (*Pos. Pol.* i. 236. See also *Pos. Pol.* iii. 374 ; *Phil. Pos.* v. p. 327).

Over all the Arts, even Poetry and Music, and over the spirit of the worshippers and beholders, mediæval architecture exercised a noble imaginative influence, both elevating and restraining, while it nurtured a race of art-workmen as remarkable for admirable traditions as for individual freedom and grace. The architects were entire artists : especially were they sculptors and painters, as, for instance, Giotto, Dante's contemporary, who designed the Campanile at Florence and painted the frescoes at Assisi. But, as the names of comparatively few architects have survived, there is here bestowed on them a general honour. Though their immediate patrons were ecclesiastical, civic, or feudal magnates, they worked essentially for the public eye and the general mind and heart ; and their works were seen and loved from age to age. Dante's reference to the Baptistery at Florence, "my beautiful St. John" (*Infer.* xix. 17 ; *Parad.* xxv. 8), is an example of such feeling at its meridian. For an interesting example six centuries earlier, see Bede, *Life of Benedict Biscop.* [V. L.]

W. R. Lethaby : *Medieval Art*, (1912),

ST. BENEZET, d. 1104.

A shepherd's son, Benezet was moved by the love of God and his fellow-men to build a bridge over the rapid Rhone at Avignon. Having "proved his mission by miracles," he obtained the help of the bishop for his work. He died during its progress, and was buried on the bridge ; a chapel was built over his tomb, and he became the patron saint of Avignon. Benezet represents here the admirable civic architecture of the Middle Ages, and its association with personal and general piety. [V. L.]

A. Butler : *Lives of the Saints*, 14th April.

ST. BERNARD, b. 1091, d. 1153.

The supreme glory of mediæval Catholicism was its priesthood. Independent of the temporal power, and naturally assuming intellectual leadership, they sought spiritually to direct society, to unite, inform, impel, and restrain by various appeals to pious affection. This beautiful office, belonging to all ranks of the clergy,

was perhaps fulfilled with purest energy by those who went forth to their spiritual warfare strengthened by monastic discipline. Seconding the holy cause, the affectionate sex gratefully contributed sympathy both fervent and steady, and Art freely gave its manifold service of beauty. Such is the general subject presented in this week, over which presides "the incomparable ST. BERNARD, in every respect the most perfect type of Catholicism in its maturity."

Bernard's life lay in the first half of the twelfth, the greatest of the Feudal centuries. His father was a vassal of the Duke of Burgundy, near Dijon, a brave and good man. His mother, Alith, was most devout: she offered all her seven children to the Lord from their birth. After studying at the University of Paris, already a centre of mediæval thought, Bernard entered (1112) the newly founded, most severely disciplined convent of Citeaux, then under the admirable rule of Stephen Harding. He brought with him (such even then was his persuasive genius) his uncle and several of his brothers, thirty persons in all. Two years later (though so young) he was sent forth, the leader of twelve companions, to found, amid immense hardships, a new Cistercian convent in a wild forest of the Aube valley—Clairvaux—henceforth his home and the scene of his most affectionate labours.

Abbot of Clairvaux Bernard remained till his death, rejecting all preferment. Before all things he was, in his own sight and in that of others, a devout monk. His monastery he moulded to his own character. It became a model of pious order. At his death it contained 700 monks, and had affiliated many convents in various countries. Bernard himself founded 63. From Clairvaux's tranquil cloister, Bernard conducted an immense correspondence—counselling, blessing, and reproving high and low with extraordinary freedom. In 1128 he took a leading part in the Council of Troyes in obtaining sanction for the order of Knight-Templars—warrior-priests destined for service in the Holy Land. In 1130 Bernard left his convent to uphold the unity of the Church, which was being rent asunder by the strife of rival Popes. He pronounced for Innocent II., and gave seven years of devoted service to the cause, including two journeys to Italy.

How he worked and triumphed and felt is thus described by his contemporary biographer:—"When he was a chosen vessel, and announced the name of Christ before nations and kings; when the princes of this world bowed down to him, and the bishops of all lands awaited his bidding; when even the Holy See revered his advice, and made him a sort of General Legate to the world; when, greatest of all, his words and actions were confirmed by miracles; he was never puffed up, but in all humility considered himself the minister, not the author, of mighty works; and when every one thought him the greatest, in his own judgment he was the least. Whatsoever he did, he ascribed to God."

In 1140 Bernard, as champion of Catholic orthodoxy, encountered

Abelard. That celebrated master of dialectics and speculative divinity, who was an old offender, had lately put forth his *Introduction to Theology*, in which, among other things, he urged that "Faith was an opinion only," and expounded the Trinity according to what he called human reasons. Bernard denounced him with fervour; to him "Faith was no opinion, but certitude," and he abhorred the degradation of holy mysteries to vulgar rationalism. In the presence of the Archbishop, the King, and all the Council at Sens, Bernard commenced to open his charge, when Abelard rose, "appealed to Rome," and left the assembly. The Council pronounced his condemnation. Bernard and orthodoxy triumphed yet further, for Abelard on his way to Rome stopped at Cluny, recanted his errors, and became a humble monk. Comte speaks of the importance of this "victory over a dangerous sophist." It was, indeed, important that the general hold of Catholicism on faith and morals should be maintained as long as possible, pending the slow preparation of the Religion of Humanity.

In 1146 Bernard, by command of the Pope, preached the Second Crusade in France and Germany, winning kings and nobles, and even the Emperor himself, and calling forth extraordinary devotion in all ranks, wherever he went. Three years later, the total failure of the crusading hosts, both French and German, filled his soul with grief; but nothing could dim his faith or abate his activity. Among his latest public acts were his work *On Consideration*, addressed to Pope Eugenius III., in which he unsparingly reproved the abuses of the Roman Court, and his pacification of the nobles and citizens of Mayence by the magic of his presence and personal appeal—a task which, spiritual knight-errant as he was, he undertook at the entreaty of the Archbishop of Trêves. His noble protection of the Jews from Christian cruelty also requires special honour. Bernard died in 1153 at Clairvaux. Twenty years afterwards he was canonised by Alexander III.

Throughout his career Bernard was especially devoted to the service of the Virgin, the truly human mediatress: guarding that character, he wisely resisted the proposed doctrine of her immaculate conception. Mariolatry dates far back in Christian annals—beyond even the Council of Ephesus in the 5th century; but it acquired systematic predominance in the imaginative life of the Crusades, when Catholic purity united with the tenderness of chivalry. The added "Lady-Chapel" in many churches of the 13th century records the glorification of this worship throughout the West. That beautiful idealisation of the Virgin-Mother, the chief poetic creation of Catholicism, humanised both worship and creed, and profoundly influenced the feelings and manners of Western Christendom—

> "For in reverence of the hevenes Queene
> We ought to worship alle women that beene."—CHAUCER.

It prefigured also Humanity and the final supremacy of affection (*Pos. Pol.* ii. 106, iii. 408, iv. 129). The Franciscans afterwards

reinforced Mariolatry, but it owed to no one name more than to Bernard.

Thus he spoke to his monks: "With all our inmost hearts, in all our vows, let us venerate Mary, since such is the will of him who willed that we should have all through Mary. Of old you dreaded the Father—at the mere hearing of His voice you trembled and hid from His presence among the trees. He gave you a Mediator, Jesus. But perhaps in Him too you dreaded the Divine Majesty, since although He was made man yet He remained God. Would you not have an Advocate also to Him? Seek then Mary. For in her was pure Humanity, pure not merely from all stain, pure also by Her unique nature. How can I doubt that she will be heard for Her reverence sake? As the Son will hear the Mother, so the Father will hear the Son. My children, this is the ladder for sinners, this is my supreme assurance, this is the total reason of my hope. To Her the Angel said, 'Thou hast found grace with God.' O joy! She will ever find grace, and it is the sole grace we need." Among countless testimonies to this service of Bernard is Dante's poem, which marks at the same time the Saint's pre-eminent rank and his lovely character. In the final scene Bernard appears to commit Dante to the care of the Virgin, and in words of adoration, often cited by Comte as characterising Humanity, prays her grace to purge the poet's eyes, that they may look on the divine light (*Parad.* xxxi. xxxii.). In the Positivist Library is Bernard's *Love of God*, chosen by Comte to mark the ideal aim both of his life and of Mediæval Catholicism. [V. L.]

Fleury: *Ecclesiastical History*, bks. lxvi.-lxix. J. C. Morison: *Life of St. Bernard*, 2nd ed. P. Laffitte: *Le Catholicisme*, p. 239. H. H. Milman: *Latin Christianity*, bk. viii. ch. 4, 5. *Pos. Pol.* iii. 408.

For Monasticism in its general aspects, see under ST. BENEDICT. St. Bernard was buried in the abbey at Clairvaux, the last remains of which were removed during the Restoration to make way for a prison.

ST. FRANCIS XAVIER, b. 1506, d. 1552.

The distribution of names in this week is mainly national. The first names are those of the Apostles of the Jesuit reform, both Spaniards of Spain's greatest century. Saint FRANCIS was the youngest son of the Lord of Xavier, in Navarre. He studied for some years in the University of Paris, took his degree there, and was made Professor of Aristotelean philosophy. In this position, and amid the first uprising of the Protestant heresy, he became the disciple of Ignatius Loyola, and was one of the ten who, on Assumption Day 1534, in the crypt of Mont-Martre, dedicated to the Virgin, vowed themselves to the succour of the Papacy.

After rejoining his brethren in Italy, Xavier took priest's orders, and ministered in Venice, Bologna, and Rome. He was then chosen by Ignatius to go to India as a missionary under the special pro-

tection of John III., King of Portugal. With the highest credentials from that Prince and the Pope, including the appointment of Papal Legate, Francis, who was now a brother of the Society of Jesus, sailed from Lisbon with the Governor of the Indies, and in 1542 arrived at Goa, the ecclesiastical and temporal capital of the Portuguese Empire in the East.

The remaining ten years of Xavier's life were spent by him as a missionary captain, encountering missionary labours, difficulties, and dangers in Goa, on the coasts of Southern India, in Malacca and the Spice Islands, and in Japan, where he remained two years (1549-1551). Eager for the spiritual conquest of civilised peoples, Xavier in 1552 made for China : he planned to enter with a royal embassy, but was prevented by the action of the Portuguese Captain at Malacca ; he then formed the perilous design of entering secretly with a single companion, but a fever overtook him, and he died in the island of San Chan, at the mouth of the Canton river. His remains were taken to Malacca, and thence to Goa, where they were (1554) finally interred in the Church of St. Paul. Miracles easily grew around the story of so remote and romantic a career : some of these were recorded upon his cononisation in 1622.

Xavier's attempt to convert the theocratic and Mohammedan populations to Catholic Monotheism, itself in deep decline, necessarily failed ; and the same religious decay frustrated his fervent efforts to reform the rapacious and licentious European adventurers whom he found in the East. But his work was not lost to Humanity as an Apostolic example. His exalted and beautiful character is pictured in his remarkable letters to his colleagues and subordinates, to " Father Ignatius," to the Society at Rome, and the King of Portugal. They illustrate the systematic aim and practice of Jesuit undertaking. To recognise Catholic authority and fulfil its hope of universal dominion—such was the aim : the means were entire devotedness and perfect discipline of the Order, free intercourse with all ranks and conditions, adaptation of modern intellectual resources, deference to authority ; lastly, use of the secular arm. [V. L.]

H. J. Coleridge : *Life and Letters of St. Francis Xavier.* R. S. Whiteway : *The Rise of Portuguese Power in India.* P. Laffitte : *Le Catholicisme*, pp. 438, 472.

ST. IGNATIUS LOYOLA, b. 1491, d. 1556.

IGNATIUS LOYOLA, founder of the Society of Jesus, was born in the castle of Loyola, and became a brilliant soldier and courtier at the court of Ferdinand of Arragon. Lamed at the siege of Pampeluna, he dedicated himself to the service of the Virgin with all the forms of chivalry, in the church of Monserrato (1522), and meditated some months in ascetic solitude in a cave at Manresa. The practical purpose of his life now dawned upon his view : he

was to be a soldier of the Church, and make other soldiers: he afterwards attached extraordinary importance to his experiences at this time, often saying, as a reason for this or that rule in his constitutions, "I saw it thus at Manresa."

In 1523, Ignatius went as a poor pilgrim to Palestine. On his return he composed his *Spiritual Exercises*, and proceeded to study, first at Barcelona then in the Universities of Alcalá and Salamanca, where his preaching drew down upon him the Inquisition; finally, in the University of Paris, which then contained more than ten thousand students of various nationalities, and was fermenting with heresy. Here he took his degree as Master of Arts. Here also he gathered the first members of his future Society, Xavier and others, almost all of whom attained eminence in the Order.

With him they took vows at Montmartre (1534) to make pilgrimage to the Holy Land, and, failing that, to offer their lives to the service of the Pope. By arrangement they met again at Venice; and the pilgrimage having become impossible through the outbreak of war, they journeyed to Rome (Ignatius excepted), and obtained the favour of Pope Paul III. By his permission Ignatius and seven companions were ordained priests (1537). They at once proved their evangelical zeal in several Italian cities. In 1540, through Loyola's skilful negotiation, the same Pope granted his bull, *Regimini Militantis Ecclesiæ*, incorporating the Society of Jesus under vows of poverty, celibacy, and obedience, with a fourth vow to go anywhere at the Pope's bidding.

Ignatius was chosen the first General of the Order, with tenure for life and absolute powers. He and his subjects made their profession in the Church of St. Paul, 22nd April 1541. His own vow was as follows:—"I hereby promise to the all-powerful God, and to the Pope his vicar upon earth, in presence of the Blessed Virgin his Mother, and of the Company, perpetual poverty, celibacy, and obedience, according to the rule of life contained in the bull of the Society of our Lord Jesus, and the constitutions already and hereafter to be published. I promise that I will cause young persons to be instructed in the faith according to the same bull and to the constitutions."

During the remaining fifteen years of his life Ignatius directed from Rome the rapidly widening operations of the Society, with the utmost devotion, the most exacting system, and extraordinary success. He died at Rome; his remains now lie in the Church of the Gesù. He was canonised in 1622 by Gregory XV.

"This noble enthusiast," says Comte, "deserves, from the sociological point of view, to be honoured as the true successor of the Church reformers of the 13th century. He endeavoured to arrest the dissolution of religion, by re-constituting Catholicism on the basis of the worship of the Virgin, the goddess of the West. His Order he instituted with the design of once more uniting the functions of preaching and confession, and separated it from the nominal

chief of the Church, with the view of better subordinating it to its real chief. He strove to get the true priesthood everywhere transferred to his Jesuits, by procuring for them the general direction of an education suited to the aspirations of the time, and the superintendence of the foreign missions which the universal expansion of the West seemed to demand." His plan, Comte goes on to show, could not succeed, because the intellectual revolution could not be stayed. "Under his successors the reactionary policy soon rested on a vast hypocritical conspiracy." [V. L.]

Ranke: *History of the Popes*, i., and Macaulay's Essay thereon. J. A. Symonds: *The Renaissance in Italy*, vol. vi. (*The Catholic Reaction*, ch. iv.). P. Laffitte: *Le Catholicisme*, pp. 423-485. *Phil. Pos.* v. pp. 413-417. *Pos. Pol.* iii. 470-473.

ST. CHARLES BORROMEO, b. 1538, d. 1584.

St. Charles represents the better order of Catholic prelates that arose to uphold the Church against the Protestant revolt: not leaders of thought, but friendly to secondary learning; not general leaders of action, but priests devoted to the order of the Church, deeply conscious of their own pastoral office, and overflowing with affectionate care for the people.

CARLO BORROMEO was son of the Count of Avona, and nephew of Pope Pius IV.; and was educated in Milan, Pavia, and the university of Paris. Before he was 25, Borromeo was made by his uncle a cardinal, Archbishop of Milan, and chief officer of the Roman Court. In politics he was conservative and reactionary; he supported the Jesuits, and on the death of Pius IV. promoted the election of the austere Inquisitor, Cardinal Ghislieri (Pius V.). In character he was always devout, and humble, and became more and more self-denying. During his administration the Council of Trent was skilfully brought to a close (1563), the composition of the Tridentine Catechism commenced, various seminaries founded, the Roman missal and breviary re-edited; and, among other good deeds, St. Charles was the patron of Palestrina, the great musician.

On the death of Pius IV. (1565), Borromeo, refusing further office at court, removed from Rome to Milan, and during the remainder of his life set a noble example of episcopal duty. He diligently visited even the mountainous parts of his diocese, and re-established discipline amongst the clergy and religious orders. This was no easy task, for the Governor and nobles opposed him, and an organised attempt was even made to murder him in his own chapel. He also restored churches, built convents, installed the Jesuits in the Brera, promoted the splendour of Catholic worship, gave away princely sums in charity; and when his people were stricken with the plague (1576) bravely went among them and organised their succour.

Borromeo died in 1584, and was buried in the Cathedral of Milan, in a shrine of silver and rock-crystal, where his remains, still visible,

are a centre of pilgrimage and of worship. He was canonised by Paul v. in 1610. His character may be read in these words of his own : " He who desires to make any progress in the service of God must begin every day of his life with new ardour, must keep himself in the presence of God as much as possible, and must have no other end in all his actions but the divine honour." St. Charles, it is recorded, loved the work of A. Kempis. He especially cherished the motto of his family—" *Humilitas.*" [V. L.]

Ranke : *History of the Popes*, i. 330, 361, 374. Mrs. Jameson ; *Legends of the Monastic Orders*. *Phil. Pos.* v. 419.

FREDERIC BORROMEO, b. 1564, d. 1631.

FREDERIC, cousin of St. Charles (see preceding article), was, like him, a cardinal (1587), and became Archbishop of Milan (1595). He faithfully continued the energetic and affectionate administration of the diocese, and was universally beloved ; among his later praises is that of Manzoni in *I Promessi Sposi* (*The Betrothed*). He was remarkable, moreover, for his generous patronage of both classical and Oriental learning. The Ambrosian Library and many other institutions were founded by him in Milan. He was buried in the Cathedral, near the monument of St. Charles. [V. L.]

ST. THERESA (*Teresa de Cepeda*), b. 1515, d. 1582.

TERESA, the second patron-saint of Spain, was the daughter of noble and pious parents, living at Avila, a city among the mountains of Old Castile. From the first she showed a most imaginative disposition, which she fed with the romances of chivalry ; thus, when a child, she one day set out with her little brother to seek martyrdom amongst the Moors. At the age of fifteen Teresa was sent to the Augustinian Convent of Our Lady of Grace in Avila. In 1533, against her father's will, she took the veil in the Carmelite Convent of the Incarnation outside the city. Here she remained many years, and developed an exalted habit of mental prayer, in which she saw ecstatic visions of the Divine Love : these gradually established her saintly fame.

In 1562 Teresa obtained a Papal brief to found a convent in Avila, with liberty to follow the original Carmelite statutes instead of the more modern " Mitigated Rule." She herself became prioress, and instituted a most austere discipline. Teresa now entered on a missionary career, in which her grand spirit and practical genius manifested wonderful energy. In all, she founded, in different cities of Spain, seventeen convents of " dis-calced " or " barefoot " nuns ; also, not without most trying conflicts which she bravely endured, fourteen houses of reformed Carmelite friars. These

rapidly multiplied after her death. Teresa died at Alva, and was buried there; her remains were afterwards carried to her own St. Joseph's at Avila, but on the demand of the Duke of Alva were restored by Papal order to their original resting-place. She was canonised by Gregory XV. in 1622, in company with Xavier and Loyola.

The service of her festival justly praises Teresa's "heavenly doctrine, and the fire of her pious devotion." For Teresa the nun was a poetess born, whose theme was her own dedicated soul, making itself "a garden for the delight of her Lord," and communing face to face with the Divine Human Redeemer, "His most sacred Humanity." And in her case the rich and tender mysticism was greatly related to a just intelligence and a noble humane character, which also found due language. Chief of all Teresa's writings is her *Life*, written by command of her spiritual director. She there sets forth the idea of Prayer—itself God's gift—making Christ visible in the soul. She portrays the stages of subjective adoration —first the prayer of quiet, then the prayer of union, then the irresistible rapture. Comte, writing of A Kempis and his beautiful heart-wisdom, remarks the spiritual kinship of his work and Teresa's glowing compositions, and points out their relation to later Catholicism to which they gave a powerful and most gracious aid.

[V. L.]

St. Theresa: *Life* (written by herself, Eng. trans. by D. Lewis); *The Way of Perfection*, (Eng. trans. by J. Dalton); also *Letters*; *Minor Works* (Eng. trans by B. Zimmerman, etc.). A Whyte: *Santa Teresa, an appreciation with some of the best passages of her writings*. P. Laffitte: *Le Catholicisme, pp.* 413-421. Mrs. Jameson: *Legends of the Monastic Orders*. *Pos. Pol.* iii. 461.

ST. CATHARINE (*of Siena*), b. 1347, d. 1380.

CATHARINE was daughter of a dyer at Siena. In her 18th year she joined the Dominican "Sisters of Penance," remaining, however, under her parents' roof. Her name is famous in Catholic story for her ascetic austerities, her miracles, and her visions, in one of which she became the spouse of the Infant Christ, receiving from him a ring before the Holy Mother, St. John the Evangelist, St. Paul, St. Dominic, and King David. But Catharine's "seraphic love" led her also to wonderful devotion to the sick and sinful; and the bull of Pius II. for her canonisation (1461) records that "no one ever approached her without coming wiser and better from her presence." Moreover, though she learnt to read only in later life, Catharine had an extraordinary public career, above all as a peace-maker. Such was her saintly renown, the Florentine magistrates, in 1376, invited her from Siena, and sent her as ambassadress to Pope Gregory XI. at Avignon, to sue for the removal of his interdict over the Republic. On this occasion she pressed home another subject dear to her and Christendom. She had already

sent written entreaties to the Pope urging him to return to Rome. She now renewed these entreaties with passionate eloquence. The Pope, it is recorded, was deeply moved: he set out for Rome in the same year, and entered the Holy City in January 1377, thus terminating "the Babylonish Captivity." At the request of his successor, Urban VI. (1378), Catharine settled at Rome, as a kind of saintly counsellor. There in 1380 she died, and was buried with immense veneration under the high altar of the chief Dominican church, Sta. Maria sopra Minerva. Three hundred and sixty-four of her letters remain and four devotional "Dialogues."

[V. L.]

A. T. Drane: *The Hist. of St. Catharine and her Companions* (4th ed., 1915). Josephine Butler: *Life of St. Catharine*. F. Gregorovius: *Hist. of the City of Rome in the Mid. Ages* (Eng. trans.). C. I. Hemans: *Christianity and Sacred Art* vol. ii. Mrs. Jameson: *Sacred and Legendary Art*. Portrait by Vanni at Siena. Sepulchral Effigy, by Mino da Fiesole (15th century).

ST. VINCENT DE PAUL, b. 1576, d. 1660.

VINCENT was born at Ranquines, near the Pyrenees, in the present department of the Landes, and as a boy tended his father's flock. Choosing the Church as a calling, he became a student in a convent of the Cordeliers at Acqs; thence he proceeded to the University of Toulouse, where he supported himself by teaching. Ordained priest in 1600, he continued at Toulouse studying theology. In 1605, when taking passage through the gulf of Lyons, he was captured by Barbary pirates; they carried him to Tunis, where he was sold and resold as a slave. Eventually he owed his deliverance to the impression which his Christian faith made upon one of his master's wives, and through her upon his master, who was a renegade Christian. They escaped together to France (1607). At Avignon the renegade was solemnly received again into the Church, and the Pope's Vice-Legate, who had performed the ceremony, took Vincent with him to Rome. From Rome Vincent was sent back to France by the French ambassador, with a confidential message to Henri IV. He arrived in Paris in 1609, and commenced the long charitable career which has made his name famous and beloved. Among his chief helpers were the Count de Joigny and his wife, in whose family Vincent lived for some years as tutor to their sons; he was also aided and honoured by Richelieu, François de Sales, Louis XIV., and many others.

Vincent's principal achievements were his devoted labours among the galley-slaves, and his founding of many benevolent associations, especially the *Confréries de Charité*, the *Congregation of the Missions*, the *Sisters of Charity*, and various hospitals in Paris. In these and other enterprises of the like kind, Vincent showed not only a rare warmth of love and pity, and the purest zeal for virtue, but a genius for winning others to his ever-generous cause and bringing his work to a successful issue. His care was both for the bodies and souls

of men. In Church politics he was a pure conservative. When the Queen Regent appointed him President of her Council of Conscience, he warmly espoused the cause of the Jesuits against the Jansenists. He died in 1660 in the House of St Lazarus, and was buried in the church with great honour. He is honoured as the founder of the Order of Lazarists. He was canonised by Clement XII. in 1736. Comte points out that, though St. Vincent's devoted goodness was inspired and directed by Catholic piety, it was such as might at that time have been prompted by other creeds, or even by mere humane feeling. Authentic portraits of his venerable and benevolent countenance have been frequently engraved.

[V. L.]

Biographie Universelle : *Vincent de Paul.* Mrs. Jameson : *Legends of the Monastic Orders.* P. Laffitte : *Le Catholicisme,* pp. 439, 485-498. *Phil. Pos.* v. p. 419.

ABBÉ DE L'ÉPÉE (*Charles Michel*), b. 1712, d. 1789.

The good man here commemorated as a type of Catholic philanthropy in France in the 18th century was the son of the King's Architect at Versailles. A pious Jansenist, he entered the Church, and was made canon in the Cathedral of Troyes. Religious compassion led him to take up in Paris the cause of the deaf and dumb, then a much neglected class of sufferers. To their systematic instruction he gave a long life of intelligent and affectionate energy, and nearly all his means. "I devote myself to the poor," he said. His first State-patronage he owed to the Emperor Joseph and Marie Antoinette. A grateful pupil wrote for inscription on his bust a French couplet to this effect :

> "Twin blessed marvels wrought our Master dear :
> Our hands he taught to speak, our eyes to hear.

The good Abbé's aim has been continued in every country in Europe, but a labial system is now preferred. [V. L.]

P. Laffitte : *Le Catholicisme,* pp. 440-442, 498-505. Portrait engraved in Knight's Portrait Gallery ; Statue at the institute for the Deaf and Dumb which he founded. He is buried in the Church of St Roch, Paris. A street in Paris was named after him : part of this is still the *Rue Abbé de L'Epée* ; the remainder is now the *Rue Auguste Comte.*

BOURDALOUE (*Louis*), b. 1632, d. 1704.

BOURDALOUE, says Voltaire, "was the first model of good preachers in Europe." Few particulars are recorded of his life. He was born at Bourges, where his father was a lawyer. In 1648 he entered the Jesuit College in Paris, and eventually became one of the professed, but continued studying and teaching twenty years before he made preaching his career. The Court of Louis XIV. and all classes listened with rapt attention to his sermons. Madame de

Sevigné, under date 1680, writes : "Nous entendîmes après dîné le sermon de Bourdaloue, qui frappe toujours comme un sourd, disant les vérités à bride abattue, parlant à tort et à travers contre l'adultère : sauve qui peut, il va toujours son chemin. "His modern critic Sainte-Beuve speaks of "sa grandeur, sa sobre beauté, et sa moralité profonde."

Notwithstanding brilliant rivals, Bourdaloue kept his high place in public admiration to the last, and not a little by his high character. "His conduct," said a contemporary, "was the best answer to the *Provincial Letters*." Various eminent persons, amongst others Condé, chose the great preacher to direct their consciences : but this office he declined to render to Madame de Maintenon. After the revocation of the Edict of Nantes Bourdaloue was sent to Languedoc to preach to the "new converts." His last services were in hospitals and prisons. [V. L.]

Life, prefixed to his Works. P. Laffitte : *Le Catholicisme*, pp. 572-614. C. A. Sainte-Beuve : *Causeries du Lundi*, ix. Portraits by Chéron and Jonvenet. He is buried in the Church of St. Paul-St. Louis, Paris, formerly the Church of the Jesuit College.

FLEURY (*Claude*), b. 1640, d. 1723.

FLEURY was the son of a distinguished advocate in Paris, and was educated in the Jesuit College of Clermont at Paris, now the Lycée Louis le Grand. He practised at the bar for nine years, and then entered the Church. His great learning and honourable character recommended him to employment as tutor in the royal family : in the case of the Duc de Bourgogne, he was associated with Fénelon. In 1696 he was elected to the Academy. In 1707 Louis XIV. gave him the Priory of Argenteuil, and on the king's death he was appointed confessor to the young Louis XV.

Fleury was essentially a scholar. He was author of various legal and ecclesiastical books, which have a respected place in French literature ; but his masterpiece was his *History of the Church* (included in the Positivist Library). This vast work Fleury did not commence until his 67th year : at his death he had brought it down to the opening of the Council of Constance (1514). Fleury was a friend of Bossuet, and prepared the Latin version of his *Exposition*. [V. L.]

P. Laffitte : *Le Catholicisme*, pp. 614-630. Voltaire (*Siecle de Louis* XIV.) says of Fleury "his *History of the Church* is the best that has been done, and the introductory *Discourses* are much superior to the *History*. They are almost the work of a philosopher : which the *History* is certainly not." The eight *Discourses* are also published separately. A ninth Discourse on the Liberties of the Gallican Church, published after his death, was put into the Index, as were two of his other works.

PENN (*William*), b. 1644, d. 1718.

Protestant theologians, such as Luther and Calvin, are not in this Calendar, since the positive, and even the negative results of the Intellectual Revolution in Protestant countries are best exhibited by systematic thinkers like Bacon and Hobbes, and practical statesmen like William the Silent and Cromwell. In decisive protest against the Past, temporal or spiritual, none took a more significant or purer part among Protestants than the English Quakers or Society of Friends. Confiding in the "inward light," which was to them both love and reason, they proclaimed a universal Christian society, universal peace, universal toleration of opinion, and fraternal duty to all. Among their heroes was William PENN.

His life presented a strange yet intimate combination, he was both Quaker and courtier: a faithful, striving, and often suffering Quaker, and at the same time an accomplished courtier and man of affairs, a Fellow of the Royal Society, the influential friend of high personages at home and abroad, the very confidant even of the Catholic James II. He was the eldest son of Sir William Penn, a most distinguished Admiral under both Cromwell and Charles II. Dismissed from Oxford University for nonconformity, young Penn was sent to travel abroad: upon his return he saw some military service in the fleet with his father, and in the army in Ireland with the Duke of Ormond. But falling in again with the Quaker preacher whom he had known in Oxford, he was "converted." Eventually he became a bold speaker, writer, and missionary (both in England and Germany) for the Quaker cause. Twice in his early career he suffered long imprisonment for his faith: his trial in 1670 is famous in English constitutional history as establishing the immunity of juries; and during two reigns (Macaulay's calumny notwithstanding) he nobly exerted his court influence for the succour of his much persecuted brethren.

His singular position led him to his world-known achievement. To many of his co-believers, English, Dutch, Swedes, and Germans, the New World had offered an asylum. Hence Penn petitioned that in payment of a large debt due from the Crown to his father's estate, which he had inherited, he should receive a concession of territory in America. The grant was made (1681), and the land named by the king *Pennsylvania* after the great Admiral. Penn drew up a democratic constitution, planned the city of Philadelphia ("loving brotherhood"), and organised a large emigration: in 1682 he visited the Colony as Proprietor and Governor, and made his celebrated treaty of friendship with the Indians (of which, however, no exact record remains).

His scheme—"the Holy Experiment" he called it—was generously conceived and generously executed, especially as regards its religious toleration, mild criminal code, and gentle policy towards

the Indians and negroes, though these last still remained slaves. The colony prospered rapidly. Penn made a second visit there in 1699. His later years were harassed with pecuniary and political troubles. He died in 1718, and was buried at Jordans, Buckinghamshire. [V. L.]

J. W. Graham: *William Penn* (1917). W. H. Dixon: *Life of William Penn*. Bancroft: *History of the United States*, ch. xvi. Penn: *Works*; *Selections* (Everyman's Lib.) *Phil. Pos.* v. p. 466. *Pos. Pol.* iv. 266. Portrait (as a young man in armour), frequently engraved. The character of Penn is vindicated by J. Paget (*New Examen*, 1861, reprinted in *Paradoxes and Puzzles*, 1874) and by H. Pitman (a prisoner taken at Sedgemoor) reprinted by E. Arber (Garner, vol. ii.). See also under Fox.

FOX (*George*), b. 1624, d. 1690.

George Fox, the founder of the Society of Friends, commonly called Quakers, was the son of "righteous Christopher," a weaver in Drayton, Leicestershire, and spent his boyhood in Nottingham, shoemaking and watching sheep. He reached manhood amid the religious and social convulsions of the civil war. No extant Church could satisfy his self-questioning, resolute soul, and he commenced preaching "the inward light" as the universal religion. Such a dogma forms part of every faith—not least of Catholicism (*Imitation of Christ*, bk. ii. ch. i.): but, uncontrolled by prudent authority and objective truth, it is obviously capable of great extravagance, even the abjuring of all civilisation. It led "the Quakers" to reject all system in spiritual things and many precious social symbols and instruments, but in them it was tempered with modern reason, industrial sympathies, and above all wide affection. Fox and his followers used their dogma not merely against temporal and spiritual oppression, but to consecrate pacific manners, and they religiously exacted pure and humane conduct in personal, civic, and national life. Undaunted by persecution, including first and last five years in prison, Fox continued throughout his life an itinerant and always uncompromising preacher. Besides travelling all over England, he visited Scotland and Ireland, Holland (twice), and crossed the Atlantic to the West Indian and North American Plantations, where Pennsylvania and to some extent New Jersey and Delaware were to be Quaker States. He was kindly regarded by Cromwell. He died in London, and was buried in the Quaker burying ground near Bunhill Fields. Penn said of him: "Many sons have done virtuously in this day, but, dear George, thou excellest them all!" The Quaker faith, having rendered eminent temporary service in England and America, has fully shared in the general decline of theology. [V. L.]

G. Fox: *Journal*. T. Hodgkin: *George Fox*. M. Webb: *The Fells of Swarthmoor Hall*. W. C. Braithwaite: *The Beginnings of Quakerism*. Carlyle: *Cromwell*.

BOSSUET (*Jacques Bénigne*), **b. 1627, d. 1704.**

In the five centuries between Bernard and Bossuet, the mediæval system yielded to the modern transition. Innocent III. and St. Louis, exemplars of meridian Catholicism; Louis XI., and Richelieu, temporal Dictators; Gutemberg and Columbus, pioneers of modern industry; Galileo and Kepler, architects of physical science, tell the tale in this Calendar: lastly, Descartes, who produced an all undermining metaphysic, and simultaneously essayed an objective synthesis, a universal system of material law. In the 16th century the Catholic Church, which had been for two centuries spontaneously decaying, broke asunder; the northern peoples became various Protestants, the Southern populations and the central French nation continued the traditional faith, thereby saving much of Catholic and chivalrous feeling from the general wreck: but everywhere the sceptical spirit found its way, and everywhere the secular power reduced to subjection the spiritual. Demoralised by their loss of independence, and increasingly conscious of the incompetence of their supernatural doctrine to cope with modern elements, the Catholic Hierarchy were often corrupt and oppressive; but they possessed a venerable worship, pastoral office, and noble traditions: these still conferred moral authority, and especially held the allegiance of women, who, standing aloof from the intellectual movement, continued to treasure up habits of moral order and affection for the future use of Humanity—an inestimable service (*Pos. Pol.* iii. 434).

There remained then to the Church, in the presence of immense distracting forces, a conservative office, which in the higher field yet inaccessible to science, could even be progressive. It consisted, (1) in continuing to affirm against all adversaries religious unity and a universal Church to be the true human aim; (2) in presiding over private morals and education, also in worthily seconding and dignifying the impulse of the time towards philanthropic enterprise; (3) in carrying forward, under Catholic reserve, the intellectual study of social phenomena and human nature. In all these ways, but especially the first and last, BOSSUET was the High Priest of his age.

He was born at Dijon, and as a boy attended the College of Jesuits there. At fifteen he was sent to the College of Navarre in Paris, where he laboriously completed his education in classical literature and theology ("*Bos suetus aratro*"). Ordained priest in 1652, after preparation in Vincent de Paul's "retreat," Bossuet went to Metz, where he had already been made canon, and where he became dean. Of the art of preaching he grew to be an imposing master, and before long won the King's trust and general distinction in Church and Court. He was above all celebrated at this time for his State funeral orations. Appointed Bishop of Condom

in 1669, Bossuet presently resigned the See to fulfil his new duties at Court as preceptor to the Dauphin. On concluding that service (described by him in a letter to the Pope), he was made Bishop of Meaux (1681).

Bossuet's first work as Bishop of Meaux was to be spokesman of the Church Assembly which Louis XIV. had convoked to support his vainglorious quarrel with the Pope, respecting the *Régale* and the rights of the Gallican Church. Bossuet preached the opening sermon on *The Unity of the Church*. His also were the *Four Articles*, which, denounced by the Pope, but made law by Louis XIV., mark an epoch in French and Church history. Thereafter Bossuet lived in his diocese, fulfilling his episcopal duties with exemplary zeal, and wielding an indefatigable pen. In 1700 he led another Assembly in pronouncing against certain heresies. He died in Paris in 1704, and was buried in Meaux Cathedral.

Bossuet's genius was, Comte says, "pontifical." He grandly guarded the great highway of Catholic orthodoxy and Catholic order. But all his work, even his greatest, suffered from obsequiousness to the office and person of the national master. As Arnauld said of him: "Il y a néanmoins un *verumtamen*, dont j'appréhende qu'il n'ait à rendre compte à Dieu: c'est qu'il n'a pas le courage de rien représenter au roi. C'est le génie du temps, même à l'égard de ceux qui ont de grandes lumières." Against proximate disturbers of the Church "the Eagle of Meaux" was an eager antagonist. With the Protestants he was in life-long controversy. For them he wrote (with much else) his conciliatory *Exposition of the Catholic Creed*, 1671, and his searching *History of Protestant Diversities*, 1688 (both in the Positivist Library), and maintained in his later years a long correspondence with Leibniz. For the revocation of the Edict of Nantes Bossuet was not directly responsible, but he more than approved it (*Sermon on Le Tellier*, 1686); taking pains, however, that in his diocese the cruel decree should be gently administered. He also contended—in some cases invoking help of the secular arm—against Jesuits and Jansenists, against mystic Quietists and their patron, the noble Fénelon, also against Simon and the school of innovating biblical criticism.

With the remoter, but more deadly adversaries of Catholicism, Science and Metaphysic, Bossuet did not close. Mathematics he was ignorant of, and in philosophy he was almost an avowed Cartesian (see his *Knowledge of God and Oneself*, written for the Dauphin). Bossuet's official career could not but mark the social degeneracy of the Church, and on several occasions—as when he cursed Molière—he appeared even an opponent of modern light; but he is here honoured as a conservative statesman, and especially as the author of the following works in the Positivist Library besides those already mentioned: *Sacred Polity* (1671), *Discourse on Universal History* (1681), and *Abridgment of the History of France* (1670), all written for the Dauphin.

Charged with the instruction of the royal heir, Bossuet's genius was stimulated to produce these synthetic institutional treatises on Society, and on History, which he calls "the guiding light of political wisdom." The *Sacred Polity* draws from Scripture and experience fundamental principles of social order, human and patriotic, applying them, however, to consecrate and perpetuate the *régime* of Le Grand Monarque. The *Discours* (Bossuet's "greatest work"), offers a conspectus of human history, sacred and profane, down to the accession of Charlemagne. It does not in terms declare a continuous progress, for it contrasts the immutable divine order, displayed in the Jewish and Catholic Churches, with the contingencies of human empires, Egyptian, Greek, Roman: yet all these are characterised and linked together in an expanding series, thus designed: "This view of universal history is to the histories of each country and people what a general map is to special maps. . . . God, who created and organised the universe, appointing for the establishing of order that all parts of this grand whole shall be mutually connected, hath also appointed that the course of human affairs should have its due stages and proportions—I mean that men and nations have had qualities commensurate to the height they were destined to attain; and that excepting certain extraordinary strokes where God would have his hand appear alone, no great change has ever taken place without having had its causes in the ages antecedent." Comte calls this "the last capital inspiration of Catholicism," remarking that it was impossible to the negative school, which could not appreciate Catholic progress. Connecting with Cartesian science, Bossuet thus preluded the coming Historical school, and even Condorcet and the Positive Synthesis. [V. L.]

L. F. J. de Bausset: *Life of Bossuet*. A Rébelliau: *Bossuet*. J. F. Stephen: *Horæ Sabbaticæ*, 2nd Series, iv. v. B. L. H. Martin: *Histoire de France*, bk. v. ch. i. C. A. Sainte-Beuve: *Nouveaux Lundis*, ii. P. Laffitte: *Le Catholicisme*, pp. 511-614. J. H. Bridges: *France under Richelieu and Colbert*, lect. iv. J. Morley: *Voltaire*. *Phil. Pos.* iv. p. 204; v. pp. 8, 247, 418, 458, 492; vi. p. 257. *Pos. Pol.* i. 249; iii. 483.

FEUDAL CIVILISATION.

THE characteristic of mediæval history is the double action throughout its entire course of two co-ordinate forces :—1st, Catholic or religious ; 2nd, The Feudal or Chivalric movement. Hence the seventh month, devoted to *Feudal Civilisation*, must always be taken with the sixth, that of *Catholicism* ; they form a contemporaneous and binary power. The essential functions attempted by mediæval civilisation as a whole may be thus grouped :—

(1) To purify and discipline the fiercer passions of man, especially inhumanity, pride, and lust.
(2) As a means and a corollary of the former, to raise the position of woman.
(3) To protect the weak, dignify gentleness, and raise the value of human nature as such.
(4) To suppress the rule of universal war, and to transform war of conquest into war for defence.
(5) To establish true *local* government, under the sanction of reciprocal duty, in lieu of submission to a centralised empire.
(6) To suppress slavery, and to found the institution of free labour.

These six functions were undertaken by Catholicism and Feudalism, working together in varying degrees. The first three were mainly the task of the Church, though Chivalry played a very large part, especially in regard to the position of women. The latter three tasks were essentially the work of Feudal Civilisation, indirectly aided by Catholicism, especially with regard to slavery. In a sense, the result was practically achieved in the nine centuries which separate Theodosius from the removal of the Papacy from Rome (roughly speaking between 400-1300 A.D.). The result was achieved, it is true, most imperfectly : with much confusion, cruelty, and folly ; but also with magnificent heroism and self-devotion. If it were an ultimate failure, this was because success was impossible with such limited knowledge and false ideas. But it was the turning point of history ; it was the cardinal *Transition* ; and it produced some great things which have never been seen on earth before or since. The bitter memories which its failures have left were due to this : that it never recognised how entirely provisional its own part was.

The main tasks of *Feudal Civilisation* were to establish (1) *defensive* war, (2) local organisation, (3) the type of chivalry, honour, and free labour. Under the *Military Civilisation* of antiquity all the Roman names are those of conquerors or imperial statesmen. Under the *Feudal Civilisation* of the middle ages, all the names are those who fought to defend, or who founded local institutions, or laboured towards national organisation. Of such men, the purest and greatest type is obviously our own Alfred.

Charlemagne himself is exceptional. He is a type of Imperialism rather than of Feudalism; and his wars can only be regarded as defensive when we look to their ulterior results. But his work ultimately tended to found the civilisation of the middle ages by making Feudalism and national patriotism possible, and by making the Church an independent and co-ordinate force. He is himself so imposing a personage, the scale of his work was so vast, and its effect on the entire West has been so permanent, that no other type of the mediæval ruler could possibly be chosen as chief. It was he who gave to Western Europe practical security from interminable invasion and definitive settlement into equal nations. His impressive rule made the West feel its common life, with independent local duties. His revival of imperial organisation easily transmuted itself into a feudal hierarchy proper. And the relations he established with the Church formed a rough working basis, during some five centuries, for the precarious division of authority between spiritual and temporal powers.

Excepting Theodoric, who is a grand but premature type of the mediæval chief, all the main names of this month come between Charles Martel, 730, and the death of St. Louis, 1270: a period of five centuries and a half. A few represent the survival of the chivalrous qualities in later ages or the influence of chivalric traditions on barbarous races of East and West. But, with a few exceptions, due to personal qualities, the whole series of names in this month belongs to the true period of Feudal Civilisation. This begins with the defence and settlement of Western Europe under its local chiefs, and ends with the manifest disorganisation of Mediæval society at the opening of the 14th century, whereof Dante has given so striking a picture.

The binary character of Catholic Feudalism naturally produces a considerable interchange of function. In the height of its activity many Churchmen were rulers, just as many sovereigns were saints. As there are in the month of *Catholicism* three Roman Emperors and other secular names, so there are in that of *Feudalism* no less than twelve ecclesiastics and thirteen saints. It would seem that the sixth month is dedicated to the doctrine, morals, and manners of mediæval Catholicism; the seventh to its active effect upon life and social organisation. It is of much significance that under *Feudal Civilisation* are ranged five Popes, the founders of the Friars, and seven women.

In the first two weeks all the types save one are soldiers ; in the third they are all Churchmen ; in the fourth they are all sovereigns. The week of Alfred represents the defence of Europe against invaders ; that of Godfrey the Crusades and Chivalry, properly so called ; that of Innocent, the influence of the Church on Government ; that of St. Louis, the type of the Christian king. [F. H.]

Phil. Pos. v. 54. *Pos. Pol.* iii. 353-420. H. W. C. Davis : *Medieval Europe* (Home Univ. Lib.).

CHARLEMAGNE (*Charles or Karl the Great*), b. 742, d. 814 A.D.

CHARLES, the eldest son of Pepin the Short, and grandson of Charles Martel, succeeded to the sovereignty over the Franks, jointly with his brother Carloman in 768 (*ætat.* 26). On the death of Carloman, 771, he was recognised as sole king. He was hardly secure in the Frankish kingdom when he began (772) the long wars to incorporate the Saxons, which lasted for 32 years.

Under this name were included the non-Christian German tribes who inhabited the country between the Rhine and the Elbe in the modern Westphalia, Hanover, Brunswick, Oldenburg, Holstein, Mecklenburg, and North Saxony. These tribes, more or less allied with the Norsemen, remained attached to the old religion of Odin ; they maintained a strictly tribal system in scattered centres of ill-defined extent : they were still in the partly nomadic stage, and without any regular political organisation. A race of hardy soldiers, in so backward and inorganic a state, formed a standing menace to the settled Christian populations of the Frankish dominion, very much as did the Teutonic and Gothic tribes to the Roman Empire. The absence of central authority and of town life made any effective conquest of them very tedious, and even a permanent peace impossible. The one means of their real incorporation with Western Europe was their adoption of the civilisation and religion of the Franks. The security of the Frankish dominions rested on the incorporation of their barbarian kinsmen on their north-eastern frontier.

It is highly characteristic of the genius of the young King of the Franks that he at once recognised this, and from the first set himself to a terrible task, where neither wealth nor glory could be won. Charles's Saxon wars, the first and most continuous effort of his reign, like the wars waged by every civilised conqueror against a race of brave and stubborn nomads, were neither marked by great victories nor by very definite campaigns. In the long course of them he tried every policy in turn : severity, conciliation, exhortation, and negotiation. From time to time his measures are marked by dreadful bloodshed and destruction ; and throughout, his warfare

has much of the character and not a little of the ferocity of a war of religion. In the spring of 772, Charles crossed the Rhine at Worms and opened the campaign in Westphalia. He destroyed, at Ehresbourg, the Irmensul, or palladium of the Saxons. The war was prolonged in a succession of risings and desultory victories, and was not finally completed until 804, having cost the Frank King no less than twenty armies. Time after time the Saxons, compelled to accept baptism and to submit to the king, broke out into rebellion and renounced Christianity. Their national hero was Witikind. In the campaign of 782 Charles massacred in cold blood 4500 Saxon prisoners ; and by an order of 784 he made baptism compulsory under pain of death.

Immediately on the close of his first Saxon campaign, Charles turned his arms against Lombardy, 773. Crossing the Alps in two columns, one by the Valais, and one through Savoy, in two brief and brilliant campaigns, he completely subdued Northern Italy as far as the Neapolitan duchy, and was acknowledged as King of Lombardy, 774. The Pope, welcoming the Frankish King as the deliverer of the Church from the hated Lombard, received Charles at Rome, Easter 774, conferred on him the title of Patrician of Rome, and entered into a close alliance. Charles endowed the Papacy with immense possessions (the modern States of the Church). This conquest of Northern Italy was the commencement of the long dependence of Italy on the Empire. It was a political conquest of the country, not a displacement or spoliation of the native Lombards. Charles, in this decisive and characteristic conquest, was but following the policy of Pepin and Charles Martel, and was laying the foundation of the Frankish King as the friend and protector of the Church.

Charles's next expedition was into Spain, whither he was called by the offer of an alliance with a Saracen Emir, who revolted from the Khalif of Cordova (778). Though his campaign was without brilliant results, he advanced to the Ebro and effected a satisfactory peace. It was on the return of his army through the valley of Roncevaux, near Pampeluna, that the Gascons fell upon his rear-guard, and killed Roland and many of his peers. The defeat, which afflicted the king more than it weakened him, was the basis of the poetic legend known in the middle ages as the *Ballad of Roland*. From 778 to 812 the Franks made six other expeditions into Spain, the main result of which was finally to deliver France from any further fear of Saracen invasion, and to establish as a bulwark two small border counties—the Marches of Gascony on the north and of Spain on the south of the Pyrenees.

Further conquests awaited the king on the east. The incessant wars with the Saxons compelled Charles to follow the turbulent races lying east and south of them. He crossed the Elbe (789), and advanced to the Oder. There he established a tributary district extending northward to the Eyder. Southwards he carried his

arms into Bohemia, Bavaria, and Hungary, as far as the Theiss; and in a series of campaigns subdued the main part of the modern Empire of Austria. Thirty years of almost incessant war had vastly extended the kingdom of Pepin; and had converted the Frankish dominion into an empire that comprised the main part of Western Europe. Taking it in its furthest reach, it extended from the Bay of Biscay to the river Theiss, and thence to the Adriatic on the south, and the mouth of the Oder on the Baltic. It reached from the marches south of the Pyrenees, Navarre, and Barcelona, to Pomerania on the Baltic; and from the Northern Sea across all Italy, down to the duchy of Benevento. It thus comprised the whole of France: Germany and Austria, except East Prussia, Eastern Hungary, and Croatia: the north-east corner of Spain: and all Italy, except the kingdom of Naples.

The great position of Charles now called for formal consecration. Acknowledged as the greatest ruler since the Roman Emperors, manifestly the superior in power of the Greek Emperor at Byzantium, supported by the entire influence of the Church, he resolved to revive in Western Europe the conception of the Empire under Catholic forms. On Christmas Day 800, the king in great state attended mass in St. Peter's at Rome, where Pope Leo III., placing an imperial crown on his head, thrice hailed him as "Augustus, crowned by God, great and pacific Emperor of the Romans." The Pope, anointing his head with the sacred oil, prostrated himself at the feet of the Emperor, and the entire assembly of priests, soldiers, and people ratified the act with their acclamations. Thus began the revived Roman Empire of the West, and with it the formation of the common life of Western Europe. The barbarian, or mediæval, world was formally linked on to the Roman. The Church, and the Papacy as its organ, became the spiritual guide of the Empire, and the Frankish sovereign became the right hand of the Church.

Great as a warrior, Charles was even greater as administrator and civil ruler. The whole Empire was divided into counties, the count residing in each being charged with authority, civil, judicial, and military. Under each count was a vicar, or as he was finally called a viscount, who held three courts yearly, the more serious causes being reserved for the count's court. The Imperial authority was specially exercised by the *missi dominici*, or royal delegates, who heard appeals, reported to the Emperor, and generally maintained the unity of the Empire. In spring and autumn, two great assemblies were held for ratifying the legislation proposed by the Emperor. These assemblies consisted entirely of the principal officials, lay or clerical, and they usually sat in two distinct bodies, one spiritual, the other temporal. We still possess upwards of 1100 articles, in 65 capitularies, or codes, and some 40 other rescripts, regulating to the minutest detail the whole political and economical system of the Empire.

The Emperor largely endowed the Church, insisting on the payment of tithes in full; he also founded numerous churches, schools, monasteries, and bishoprics. He was passionately devoted to the revival of learning, of music, and the other arts, and gathered round him learned men from every country, the chief of whom were the Saxon Alkwin (Alcuin), the Lombard Paul the Deacon, Peter of Pisa, and Clement of Ireland, and above all his secretary, Einhart, or Eginhart, who has left us an admirable life of his chief. With the aid of these men, the best intellects of their age, inspired by the intense zeal of the Emperor for all forms of culture, a real, but short, renascence of learning took place in the Frankish kingdom. Architecture, music, grammar, the languages of Greece and Rome, their literature and art, the art of illumination, even science, received a new impulse. From this reign we find the Church an independent, vast, and co-ordinate authority in Europe. Systematic education, eleemosynary institutions, regular taxation, and periodical assizes begin to be a part of the ordinary civilisation of Europe.

The Emperor died on 28th January 814, in his 72nd year, after a reign of 45 years, and his body was embalmed and enshrined in the Basilica he had built. His memory has justly impressed the imagination of the Western world more than that of any other ruler since Cæsar; and it is an interesting and valuable sign of this fact, that in the popular language of after ages, the style of "the Great" was mingled with his name, and that through French romances he has been known in history as *Charlemagne*. Rational philosophy respects and adopts the popular instinct. He was truly, and not only by title, Emperor of the West. His whole reign was a supreme effort to recast the world shattered by successive invasions of barbarians, and to found a regular empire. In the form in which he left it, it did not endure; but it effectually prepared the ground for the system of the Middle Ages, and it founded Europe as an organic whole.

In one sense Charlemagne is the creator of Catholic Feudalism, in that he made the Church a co-ordinate authority, and in that he gave Europe rest from incessant invasions, and founded a systematic local administration. In another sense, he checked and postponed the institution of Feudalism, in so far as his system rested on a vast imperial organisation, with direct centralisation in himself, and a unity akin to that of the great Roman Emperors. He was recognised as the Emperor of the West by the petty kings of Britain, by the Greek Emperor at Byzantium, and by Haroun-al-Raschid, the Khalif of Baghdad.

His faithful secretary, Eginhard, has left us a splendid picture of the Emperor personally, which almost presents him as the ideal hero of mediæval legend. He was of great stature and noble mien; with immense strength, energy, and activity; a powerful orator, with a clear voice; simple in his habits, temperate, and frugal; affable, courteous, delighting in music, in conversation, and in

books ; he was just, patient, magnanimous, and full of enthusiasm for merit of all kinds ; profuse in his generosity, warm in his friendships, incapable of jealousy, and sincerely pious. The one defect of his character, one that he shared with nearly all the chieftains of his race, was lawlessness of sexual indulgence, and even a cynical indifference to the marriage contract. Five wives, of whom he repudiated two after a short cohabitation, numerous concubines, and eighteen children are mentioned. And he was careless of the profligacy of his daughters, whom he loved extravagantly, and kept at his side unmarried. In nature, as in nearly all his great qualities, he singularly resembled Julius Cæsar, although what was supreme culture in the Roman was the passion for supreme culture in the Frank.

Charlemagne was not only the great ruler and soldier of his age, but, like Julius and Alfred, was himself the centre and inspiration of all social and intellectual progress. The Palace School was, like that of Alfred, the university of his age, the germ and type of the mediæval schools of later ages. In it grammar, rhetoric, jurisprudence, poetry, astronomy, physics, and Bible history were systematically studied. The Emperor himself studied astronomy, music, and physics ; he read Greek, and was an enthusiastic promoter of architecture, engineering, and the arts. He used by preference his mother-tongue, German, Latin being only a written language. He made many efforts to learn to write, but never succeeded. He was buried with great pomp at Aachen (*Aix-la-Chapelle*) in a sarcophagus which, it is believed, may still be seen there. His tomb and his remains were long the object of veneration and mystical legend. In 1000 the Emperor Otho III. visited the tomb and opened the vault, as did Frederick Barbarossa again in 1166, when Charlemagne was duly canonised as a Confessor.

It has been pointed out (*Pos. Pol.* iii. 403) that Charlemagne was personally almost the equal of Cæsar, and occupied an even superior position. The enormous advantage given to a man of supreme genius, who is placed by birth in a throne of undoubted legitimacy, enabled him to dispense with the struggles which cost Cæsar 40 years of life. Of all the mighty chiefs who have formed the course of human civilisation, Charlemagne yields only to Julius in greatness, and in moral elevation of nature is surpassed by Alfred alone. The instinct of mankind for 1000 years has marked him out as the great hero of the modern world, and has indelibly stamped his supremacy on his very name. [F. H.]

J. L. Mombert, D.D. : *Charles the Great*, London, 1888. A history from original sources, by an American scholar, with genealogies, tables, chronology, map, and portrait. H. W. C. Davis : *Charlemagne*. W. Glaister : Eng. trans. of Einhart's *Life*. T. Hodgkin : *Charles the Great*. H. A. L. Fisher : *The Mediæval Empire* (2 vols.). J. Bryce : *Holy Roman Empire*, ch. v.

THEODORIC, b. 454, d. 526 A.D.

The first week of the month Charlemagne is devoted to those soldiers and statesmen who founded the earliest settled kingdoms in post-Roman times, in Italy, Germany, Spain, and England, or who protected Europe from non-Christian invaders. THEODORIC created in Italy "the earliest, and not the least noble form of the new society, which grew out of the yet unfused elements of the Latin and Teutonic races" (Milman). Theudrich, the son of Theudemir, was of the royal race of the Ostrogoths, then settled in what is now Austria. Being sent in early age as a hostage to Constantinople, he was there educated by the Emperor. Returning to his own people, he succeeded to the throne of the Ostrogoths at the age of twenty. He invaded Thrace in 488, and, threatening Constantinople, compelled Zeno the Emperor to make peace. The following year he set forth with his entire nation, crossed the Alps, and, descending into Italy, fought three great battles against Odoacer, the King of the Heruli there settled, and, after besieging Ravenna for three years, he made a partition of his kingdom with Odoacer. Shortly afterwards, Odoacer was killed by Theodoric with his own hands; and in 493 Theodoric began a reign of 33 years, during which Italy reposed in peace under his just, vigorous, and wise rule.

He fixed his residence at Ravenna, distributed one-third of the soil of Italy to his own soldiers, and, by means of treaties with all the Teutonic peoples north of the Alps, and a series of defensive wars, he maintained his kingdom in security. The Ostrogothic kingdom was the first of the States which grew up between the Roman Empire and the Feudal monarchies. It was the direct purpose of Theodoric to fuse the Roman and the Teuton, and to put an end to the era of continual displacement. The two peoples still remained distinct in law, in habits, and in social function; the eminent Romans retaining many civil functions, the Goths being the military protectors of Italy. Agriculture, industry, art, and learning began to revive under the peace and security which the kingdom provided. Theodoric appeared at Rome as a new Emperor, but without assuming the title, or removing any of the officials. Though himself an Arian, the King enforced strict toleration; but he enriched and protected the Church. His whole conduct, with regard to religious affairs, was a model of all that is the duty of the temporal ruler who strictly respects the independent action of the spiritual powers. Giving to these every due protection and support, he never trenched on their office. It is singular that the earliest of the great mediæval rulers, and he a heretic, should be in this matter a model to Charlemagne and St. Louis.

The last years of Theodoric's life were clouded by the real or supposed conspiracy, in face of which the Gothic king is represented

by some historians as degenerating into a tyrant and a murderer. Believing that the whole of the eminent Romans were leagued with the Byzantine Emperor to overthrow the Gothic kingdom, Theodoric imprisoned and put to death the Pope and the illustrious Boëthius. It is not proven that Theodoric acted without provocation. If his memory could be cleared from the blood of some of his enemies and rivals, the Gothic king would stand out as one of the noblest and grandest chiefs who founded the mediæval system. He died at the age of 72, and was buried at Ravenna, where his tomb, "perhaps the oldest work of Christian art," still remains in solitary pathos, to record the memory of the last of the Roman, the first of the great Teutonic chiefs. This imposing mausoleum is surmounted by a dome 36 feet in diameter, made of a single stone, and weighing upwards of 200 tons. It has long been desecrated and empty. [F. H.]

Gibbon: *Decline and Fall*, ch. lv. T. Hodgkin: *Theodoric the Goth. Cambridge Medieval Hist.*, vol. i. E. A. Freeman: *Historical Essays* (3rd series) Ravenna. The Mythical Dietrich of Berne, the hero of many legends, has been identified with Theodoric.

PELAYO (*Pelagius*), d. 737 A.D.

PELAGIUS is an early and somewhat mythical predecessor of the Cid, as a Christian hero who checked the Moorish invasion of Spain. He was said to be the son of Favila, Duke of Cantabria, and a descendant of the Gothic kings. The Moorish conquest had been practically completed by the battle of Guadalete in 711, and no Christians remained in arms except in the mountains of the Biscayan province of the Asturias. Hither Pelayo escaping, was chosen as chieftain, and organised a powerful band in the mountain fastnesses. In 719, on the river Sil, he defeated the Moslems in a great battle, and, following up his successes, he formed the kingdom of Leon, the nucleus of the subsequent realm of Spain. The city of Leon, which he won from Munuza, formed the capital of a province of Leon on the Douro; and to this in a series of struggles he added Zamora, Lugo, and Astorga. In spite of the constant efforts of the Moors, he succeeded in maintaining a Christian kingdom in the Asturias and Leon, established regular agriculture and built churches. He died in 737, transmitting his throne to his son Favila, from whom it passed to Alonzo, his son-in-law, called the Catholic, in 739. Pelayo, though his deeds are clouded in scanty and somewhat legendary tales, was the true founder of the great Christian nation which, after seven centuries of struggle, finally delivered the Peninsula from the Moslems, and ultimately grew into the kingdom of Spain. [F. H.]

Ascargorta: *Hist. of Spain*, bk. iv. § 1. Pelayo is buried at Leon.

OTHO THE GREAT (*Otto I. of Saxony*), b. 912, d. 973 A.D.

OTHO, the eldest son of Henry the Fowler (whom see), succeeded his father, A.D. 936, as king of Germany, and at once sought to extend and confirm the prerogative and ascendancy of the crown. He was then just 24; but in a series of successful wars and by skilful policy, in 15 years he made himself absolute master throughout Germany, defeating in succession all internal rivals and all foreign enemies. And he forced Louis of France and the Kings of Burgundy and Bohemia to recognise his suzerainty.

In 951, the victorious hero of Germany was summoned by Adelaida (Adelheid), daughter of the king of Burgundy, and then widow of King Lothair, to defend her against the cruel persecutions of Berengar, the usurping King of Lombardy. Policy and chivalry combined to incline the King to listen. Passing the Alps with an irresistible force, he delivered the beautiful Queen—then but twenty years old—married her, and was himself crowned at Pavia. Fresh insurrections broke out in Germany against Otho; and Germans and Italians with equal aversion saw him claim an Italian crown. He restored Berengar as his vassal; and for the next four years he was absorbed in the defence of his power in Germany. In 954 he crushed the Slavs of Bohemia, and in the next year advanced with a great army to meet the invasion of the Hungarians. In the memorable battle of the Lechfeld, near Augsburg, he overwhelmed the Magyar host, 22 years after his father's victory at Merseburg, and finally saved Europe from the ubiquitous and cruel enemy which had been its terror for 70 years.

All Italy now called out for the new Charlemagne. Pope John XII., the grandson of the infamous Marozia, the worst of the whole line of Pontiffs, sent ambassadors to call in the mighty King of Germany. Otho again crossed the Alps with an overwhelming force, driving all opposition before him, and was crowned King of Italy at Pavia. Advancing to Rome he was solemnly anointed Emperor by the Pope, 962 (*ætat.* 50), and thus begins the Holy Roman Empire, 162 years after Charlemagne had revived the Empire of the West. Henceforth it was established in theory that a King of Germany, legally chosen and duly crowned at Aachen, had a right to be crowned King of Italy, and was *de jure* Emperor and could claim coronation at Rome. The new Empire, which professed to be a revival of that of Charlemagne, extended over Germany and North Italy alone; it was far less ecclesiastical in its spirit; it was far less of a real Empire and more of a vague title.

Otho was in every sense the absolute ruler of Germany and complete master of the Papacy. The Emperor had hardly withdrawn from Rome when the perfidious John XII. organised conspiracies against him. Otho returned to Rome, and summoning a Council in the Church of St. Peter, solemnly deposed the most infamous

of all the successors of the Apostle. For four years the Emperor was mainly occupied in Italy with the interminable intrigues of the Italian princes, the insurrections of the Roman people, and the treasons and ambition of a succession of Popes (962-966). The following year he had his son Otho crowned Emperor, and obtained for him the hand of Theophano, daughter of the Byzantine Emperor. The great Emperor at last returned to Germany to repress new insurrections of the Slavs. In 973 he held a brilliant Diet, at which he received the homage of the Kings of Bohemia and Poland. He died soon afterwards, at the age of 61, in the height of his prosperity and glory.

Otho, the greatest of the early Emperors, was—*longo intervallo*—a second Charlemagne in character, policy, and success. A great and victorious soldier, he assured the peace of Germany from the Slavonians on the north-eastern, and the Magyars on the south-eastern frontier. He enlarged and fostered the cities, promoted civilisation, law, and learning, founded schools, maintained peace, and suppressed civil war and insurrection with an unsparing hand. And it is his great merit to have helped the Papacy to rise out of the degradation into which it sank during the 10th century.

[F. H.]

Gibbon: *Decline and Fall*, ch. xlix. J. Bryce: *Holy Roman Empire*, ch. ix. H. A. L. Fisher: *The Medieval Empire*. Otho is buried at Magdeburg.

HENRY THE FOWLER (*Henry I., King of Germany*), b. 876, d. 936 A.D.

Upon the failure of the line of Charlemagne, and the manifest impotence of Charles the Simple, King of France, the German princes chose as their king Conrad, Duke of Franconia, and on his death, Henry, Duke of Saxony, was elected by the chiefs and accepted by the people (920). HENRY speedily overcame all opposition, and gradually formed the nucleus of Germany as a kingdom. He established *marches*, or frontier fiefs, on the north, east, and south of Germany, and he regularly organised the army. In 933 he entered on his great war with the Hungarians, then the terror of Eastern Europe. He defeated them at the decisive battle of Merseburg, where 36,000 of the enemy fell; and, driving them out of Austria, reconstituted it as a *march*, and saved Germany for a generation. He was about to descend on Italy, with a view to re-establish the Imperial dignity, when he died at the age of 60, in 936. He had just assembled the German princes, and induced them to choose his eldest son Otho as his successor.

The Saxon dynasty continued for four generations, until the death of St. Henry in 1024. Henry, named the Fowler from his passion for the chase, was the real founder of the unity and civilisation of Germany, the Charles Martel of the kingdom of which Otho the

Great was the Charlemagne. He recovered for Germany Lorraine, founded frontier fiefs on the Eider, in Meissen and Brandenburg, reduced Bohemia to vassalage, brought Austria back into the kingdom, and drove back the fierce Hungarians. His internal organisation of the kingdom was analogous to that of Charlemagne. Like him he was a great soldier and a great statesman : he made the chief dukes vassals of the king, associating with them counts palatine to represent the royal supremacy. His defects also were those of Charlemagne, personal licence and vehemence of passion. By his wife Matilda, of the race of Witikind, the Saxon enemy of Charlemagne, he united in his descendants the blood of Frank and Saxon. His daughter Hedwig became the mother of Hugh Capet : and all the Emperors of the Saxon, Franconian, Swabian, and Lorraine lines traced their descent from him. Henry himself was never Emperor, though at times so called by the Germans. He is the real founder of the Kingdom of Germany, and of the Imperial house of Saxony. [F. H.]

Gibbon : *Decline and Fall*, ch. xlix. Hallam : *Middle Ages*, ch. iii. Henry is buried at Quedlinburg.

ST. HENRY (*Henry II. or the Lame*), b. 972, d. 1024 A.D.

HENRY II., the last of the heroic Saxon house, was the grandson of Henry, Duke of Bavaria, brother of Otho the Great, and was great-grandson of Henry I. the Fowler (whom see). Otho II., the son of Otho the Great, died at the age of 28 ; and Otho III., his son and successor, died childless, at the age of 22. Thereon Henry, the eldest male of the race of the Fowler, succeeded in securing the crown of Germany (1002). By a series of energetic campaigns he subdued all his enemies, was crowned first at Mayence, then at Aix-la-Chapelle, and married Cunegunda, daughter of the Count of Luxembourg.

His first exploit was driving the Poles out of Bohemia, which they had overrun, and aiding in establishing St. Stephen, his brother-in-law, on the throne of Hungary. He was next summoned to Italy, where he drove the usurper Ardouin out of Lombardy, and was crowned King of Italy at Pavia. After further campaigns in Germany against the Poles, he again descended the Alps, recovered his authority in North Italy, and was crowned Emperor at Rome by Benedict VIII. (1014), with Cunegunda as Empress.

There, on the steps of St. Peter, he vowed fidelity to the Holy See. He loaded the Church with gifts and endowments, and his return to Germany was marked by presents to various abbeys. At Verdun he formally claimed to be admitted as a monk. But the abbot, having exacted from the Emperor a promise of absolute obedience, ordered him to return to the task of governing his Empire. Ten years more of incessant labour as a sovereign awaited him. The

restless Poles again called him back to defend Bohemia. Again he was on the point of entering the Church as Canon of Strassburg, when the Pope summoned him to protect Italy against the Greeks and Saracens. Returning to Germany, he held several Councils to regulate the Church. He confirmed to the See of St. Peter all the gifts and privileges of his predecessors. He died in 1024, at the age of 52, asserting with his last breath his unbroken chastity and the virginity of the Empress Cunegunda, although he had previously submitted her virtue to the proof of ordeal by fire.

For this and his prodigal support of the Church, he was canonised in the next century as well as the Empress. With Henry II. closes the great line of the Saxon dynasty, which had lasted 104 years (920-1024). As a soldier and a ruler Henry II. was hardly inferior to Henry the Fowler or Otho the Great. As a supporter and obedient son of the Church he was far more lavish. In that he followed the policy of Charlemagne, although the interval of 200 years had greatly altered the relations of temporal and spiritual powers, and called for more discretion as well as energy in asserting the independence of the sovereign. [F. H.]

For Kings of Germany, see *History of Germany*, by J. Sime, in *Encycl. Brit.* H. A. L. Fisher: *The Medieval Empire*. H. H. Milman: *Latin Christianity*, bk. v. ch. xiv. For St. Henry and Cunegunda—Mrs Jameson: *Legends of the Monastic Orders*, vol. i., "Benedictines." St. Henry is buried at Bamberg.

VILLIERS (*Philippe de Villiers de Lisle-Adam*), **b. 1464, d. 1534.**

VILLIERS de Lisle-Adam, of an illustrious family of the "Isle of France," was grandson of the famous marshal of the same name, and was born at Beauvais in 1464. Entering the Order of the Knights of St. John, he filled a succession of offices and duties, showing the highest qualities as a general, a governor, and a diplomatist. He had won a brilliant victory over the Soldan of Egypt in 1510, and was Visitor of all the priories of the Order in France. The island of Rhodes, off the south coast of Asia Minor, the advanced post of the Order, had long stood out, surrounded by the Ottoman Empire, as the easternmost bulwark of Christendom. The attack of Mahomet II., in 1480, had been defeated by the Grand Master d'Aubuisson; but in 1521 Soliman the Magnificent, having taken Belgrade, resolved to crush the fortress which had so long defied the whole force of Islam.

Lisle-Adam was chosen Grand Master; and, preparing for a desperate defence, he called for help from the Pope and the princes of Christendom. The siege which he sustained during the autumn of 1522 is one of the most memorable in history. From the moment of his election the Grand Master strained every nerve to meet the enemy. He had less than 1000 trained soldiers, of whom scarcely half were knights, and about 4000 armed townsmen, with a few thousand villagers and slaves. In June the Turkish fleet appeared—

in all 500 ships, with 100,000 fighting men and 50,000 labourers with the spade. Everything that skill, valour, and desperation could suggest was done by the defenders. Month after month, the assaults of the overwhelming force of Turks were driven back. Knights, townsmen, women, priests, and slaves laboured with undaunted energy to repair every breach as fast as it was made. The Turks threw in 2000 explosive shells, then a new engine of war. Towards the end of August Soliman in person led on the assault, whilst several bastions were blown up by mines and the walls were completely sapped. Fifteen assaults were made in one month; and still the Turks were driven back with immense carnage. In two renewed efforts, on the 24th of September and 29th of November, the Turks lost 15,000, and then 11,000 more.

But the city was a heap of ruins; 60 mines existed beneath it; the garrison was reduced to 3000, of whom only 300 were knights; ammunition and food had failed. No help came from Europe. The jealousies of the kings, the intrigues of their rivals, and the treachery of the Venetians left the Knights to their fate. Soliman offered honourable terms on cession of the walls, and Lisle-Adam was forced to accept them, 28th December 1522. In this six months' siege the Knights had lost 700; the Turks 80,000. The Grand Master was received with honour by Soliman and allowed to withdraw to Rome with the remnant of his Knights. The loss of this island, the key of Christendom, as it was thought, and the heroism of the defence filled Europe with shame and sympathy. Pope Adrian VI. died soon after in great grief; Francis I., Charles V., and Henry VIII. deplored the event too late.

The Emperor settled the Knights at Malta; and there Lisle-Adam died, in 1534, at the age of 70. On his grave was written "*Here lies valour victorious over fortune.*" He is one of the noblest types of the Crusader, hardly inferior, though on a smaller field, to Godfrey. "Lisle-Adam," says Professor Brewer, "combined the piety and asceticism of the monk with the valour, self-devotion, and intrepidity of the knight-errant. . . . Calm, cautious, and self-collected, he was never elated by success, never depressed by the most formidable dangers or the apparent hopelessness of his cause. . . . The grace, majesty, and sweetness which secured for him in more peaceful times the love and veneration of beholders remained untarnished and undiminished in all the trying events of this most daring and desperate enterprise." [F. H.]

Robertson: *History of Charles* V., bk. ii. J. S. Brewer: *Reign of Henry* VIII., i. 580. Whitworth Porter: *History of the Knights of Malta*, 2nd ed. 1883.

LA VALETTE (*Jean Parisot de La Valette*), **b. 1494, d. 1568.**

The successful defence of the island of Malta by the Knights of St. John, in 1565, was almost as famous as their defence of Rhodes,

43 years before. LA VALETTE, of an ancient family of Languedoc, joined the Knights of Malta, and having filled all the offices with honour, was chosen Grand Master in 1557, with renown alike as soldier, general, ruler, or statesman. His command was marked by energy, justice, and successful combats with the Ottoman forces on land and sea. In 1565, Soliman the Magnificent, then at the close of his long and great career, determined to capture Malta, the seat of his most determined enemy. The Turkish fleet of 159 sail brought 30,000 janissaries, with an immense number of ships carrying artillery and a siege-train.

La Valette, then aged 71, met the besiegers with every quality of soldier and commander, maintaining the courage of his warriors, and countermining the enemy's works. From the Pope and the kings of Europe he received no effectual aid. After many weeks and the loss of 8000 men, the Turks succeeded in capturing the detached fort of St. Elmo; but they could do no more. Daily assaults were repulsed. After four months' siege the Viceroy of Philip II. arrived from Sicily with reinforcements of 8000 men. The Turks withdrew to their ships, and were finally routed with immense slaughter—it is said amounting to 30,000 men. Of the Knights 260, of the soldiers and townsmen 8000, had perished at Malta. The defeat of the Turks in this memorable siege of four months filled Europe with joy. The Pope offered to La Valette a cardinal's hat, which he refused. The Grand Master set himself to restore the shattered fortress and to build the new city which still is called Valetta. His last years were embittered by the ingratitude of the Pope and discord within the Order. He died at Malta, aged 74, and with him the last glories of a knighthood which had saved the western Mediterranean from the Moslem fleets. [F. H.]

W. Porter: *History of the Knights of Malta*. He is buried in Valetta.

DON JOHN (*Prince Juan of Austria*), b. 1547, d. 1578.

DON JOHN, natural son of the Emperor Charles V. and of Barbara Blomberg, a woman of humble origin and coarse nature, was born at Ratisbon in 1547, and not in 1545. His original name was Jerome, and he is so called in a codicil to the Emperor's will. He was brought up secretly with great care, and acknowledged by Philip II. as his half-brother at the age of 12. He was educated along with his nephews, the Crown-Prince, Don Carlos, and Alexander Farnese, Prince of Parma, his friend, comrade, and successor. Don Juan early distinguished himself by his grace, chivalry, and success in all martial accomplishments. In his 23rd year he gained reputation by his campaign against the insurrection of the Moors, on their cruel expulsion from Granada. In 1571, the advance of the Turks in the Mediterranean and their capture of Cyprus, decided the

Pope, the King of Spain, and the Italian republics, to make a combined effort to check them. Don John was appointed High-Admiral of the Holy League; and in October 1571, with an allied fleet furnished by the Pope, Philip II., Venice, and Genoa, he met the entire Turkish host off Lepanto, on the north coast of the Gulf of Corinth, nearly opposite to Patras.

Don John commanded 336 ships, having 80,000 men. The Turks brought about 300 ships equally equipped. The heroic young chief, then 24, as appears on the medal, disposed his forces with great skill; and, passing through the fleet, inspired the troops and commanders with his own romantic ardour. From noon till sunset on Sunday, 7th October, the battle raged with dreadful carnage. It was a fight of soldiers on board ship rather than of seamen. Miguel Cervantes served on board as a soldier. The hostile vessels were laid side by side, and were attacked by boarding. Don Juan and his nephew, Alexander of Parma, fought in the mêlée like crusaders, and each killed the captain opposed to him. The Turks lost all their ships but 29; 30,000 men; and the sacred standard of the Prophet.

For the time their power was annihilated; and even Constantinople trembled. But incurable dissensions and jealousies among the Christian Powers paralysed their action; and within a few years the Turks had restored their fleet and resumed the offensive in the West. "You have shaved our beard," cried a Pasha, "but, in taking Cyprus, we have cut off an arm!" Historians have differed violently as to the importance of the victory of Lepanto (see *Pos. Pol.* iii. 477). The material blow it gave to the Ottoman power was not permanent, but its moral effect was decisive; for the Turkish fleet never again seriously menaced Europe in the Mediterranean west of Greece. The victory restored the self-confidence of all Christendom, so rudely shaken by the triumphant career of Soliman I. (1520-1566). As Ranke truly remarks (*History of the Ottoman Empire*), "the day of Lepanto broke down the Ottoman supremacy." It proved that in romantic courage and in fighting power the Cross was more than a match for the Crescent, and that the startling successes of the Turks had been won by overwhelming numbers, national unity, and desperate recklessness of life.

Don John at once became the hero of Christendom, and everywhere the people shouted: "There was a man sent from God whose name was John." The popular instinct was sound. The halo thrown round the new crusader destroyed the fascination which had surrounded the Ottoman name for a century and a half. And the thrill of triumph which passed through Europe may be compared to the terror inspired by the fall of Constantinople in 1453. We need not accept the verdict of his contemporaries that Don John was a consummate general or a great genius. As Motley well says, whilst Don John achieved glory by victories with which the world rang, his great antagonist William the Silent was founding the

liberty of his country through a series of defeats. Don John was neither statesman nor patriot; but the last of the crusaders and a hero of romance: his favourite motto was "*Macula carens.*"

Filled with visions of glory, he meditated, first, the founding a Christian kingdom in Tunis, which he conquered, and then a marriage with Mary Stuart and the deliverance of Scotland from the heretics. Both projects failed through the secret jealousy of Philip II., who sent him as Governor of the Netherlands to confront William of Orange. There, though his brilliancy, his charm, and his valour won many successes, he was no match for his mighty opponent, and could not cope with the intrigues of the malignant tyrant whom he served. After two years of fruitless efforts (1576-1578) he died, at the age of 31, broken-hearted by the perfidies of his brother, either of fever, or of poison contrived by Philip. His heart lies at Namur, his body in the Escurial beside his father, the Emperor.

[F. H.]

Sir W. Stirling-Maxwell: *Don John of Austria.* J. L. Motley: *Dutch Republic*, part v. G. Finlay: *Greece*, vol. v.

JOHN SOBIESKI (*John III., King of Poland*), **b. 1624, d. 1696.**

John SOBIESKI, of an illustrious Polish family, the son of James Sobieski, an eminent soldier and statesman, was born in Galicia, 1624; was carefully educated, travelled over Europe, and served in the bodyguard of Louis XIV., where he formed a life-long friendship with Condé. Poland, his native country, under its turbulent aristocracy and its foreign enemies, had almost ceased to exist as a kingdom, and was maintained only by splendid but desultory efforts. From his 24th year to his 50th year, Sobieski was engaged in a series of victorious campaigns, in which the broken remnants of the Poles made head against enormous odds of Cossacks, Russians, Swedes, and Turks. In 1674 the Diet of Poland met to choose a King. After a month of intrigues by the 17 candidates to the throne by a sudden patriotic impulse Sobieski, who had proposed Condé, was himself chosen.

He reigned 22 years, nearly the whole of which was occupied in desperate campaigns to secure the existence of Poland and in fruitless efforts to protect her from anarchy and civil war. It required all the energy of the new king to drive the Turks from his country. For a few years he obtained peace, troubled by intrigues and plots amongst his nobles at home, and even in his own family. A new invasion of Turks threatened Vienna. The heroic king, now 59 years old, and unwieldy from disease, put himself at the head of 25,000 Poles, and, being joined by an army from other parts of the Empire, descended to rescue the capital. It was closely invested by 200,000 Turks: the Emperor and many of its citizens had fled. On the 12th September 1683, Sobieski suddenly fell on the Ottoman

host, annihilated it with enormous loss, and entered Vienna in triumph.

All Europe was filled with admiration and thanksgiving, and for a century the anniversary was celebrated at Vienna. This splendid victory ranks with the most important of the efforts to protect Christendom from the Musulman invader. It was decisive; and marks the term of the widest area ever reached in Europe by the Crescent. Since that day Islam has never menaced Western Europe in force. Sobieski reigned 13 years more, his last years being embittered by the incessant cabals of his countrymen and the intrigues of his French wife. His address to the Diet (1688) is a pathetic forecast of the ruin of his country. "I have won battles," he cried, "but I am powerless to save her." He was indeed neither great statesman nor born ruler: but a hero of the purest type; undaunted, unconquerable, generous, self-denying, and of the adventurous spirit of the knight-errant. With him Poland ceases as a real kingdom. He died on Corpus Christi Day, 1696, the day of his birth and of his election, aged 72. His body now lies in the Cathedral at Cracow: his memory lives in the undying hopes of his countrymen. [F. H.]

W. Coxe: *House of Austria*, ch. lxvi. Leonard Chodzko: *Poland Illustrated*; and article SOBIESKI in *Biog. Générale*.

ALFRED, b. 849, d, 901 A.D.

ALFRED is taken by Comte (*Pos. Pol.* iii. 403) as the purest type of the early chiefs who effected the incorporation of the nomad Polytheists of the East and North of Europe into the European system. And he naturally presides over the first week devoted to Feudal Civilisation, the week which includes the defenders of Christendom against infidel invaders.

Alfred was born at Wantage in Berkshire in 849, the fourth and youngest son of Ethelwulf, by Osburga of the race of Cerdic. He was thus the grandson of Egbert, who had been recognised as overlord of England. As a child he was twice taken to Rome; and in 853 he was anointed as titular King by Pope Leo IV. His youth was a time of calamity to the Saxons. In a few years the work of Egbert had been undone; all primacy of Wessex had been destroyed; and the Northmen, now known as Danes, were destroying and conquering on all sides of England. They speedily established themselves over Northumbria, Mercia, and East Anglia; and penetrating into Berkshire, they compelled the men of Wessex to fight for their very existence. The character of the Scandinavian invasion had now changed. In place of piratical descents, the Danes came in organised armies, seeking to conquer and settle in new lands. Alfred's three elder brothers reigned together but 12 years; and in 871, Alfred, at the age of 22, became King of Wessex.

For seven years the young king fought desperately with the heathen invaders, at times reduced to the utmost extremity in the southern corner of Wessex; but at last he overcame them in a great victory at Ethandun, on the Wiltshire Downs. By the Peace of Wedmore (878), Guthrum, the Danish leader, accepted baptism, and a respite was secured for Wessex. Although Alfred had still to wage desperate wars, for more than 20 years he effectually defended the integrity of his West Saxon kingdom.

Splendid as was the valour by which the young King had saved his people and his religion from the savage invader, his career as a civil ruler was even more memorable and important. He saw, as Charlemagne saw, that the sole guarantee for the incorporation of the Northmen with European civilisation was their conversion to Christianity; and satisfied with this beginning of civilised life, he left the Danes in possession of the rest of England, and set himself to secure and organise Wessex. The whole kingdom was divided into military districts, each bound to supply its warriors to defend the country. He then began to create a navy; and he is thus the founder of the English maritime power. Having secured the kingdom within and without, Alfred applied himself to the strict enforcement of justice, and to the formation of a sort of common law.

But the most distinguishing feature in Alfred's career was his zeal for learning—a zeal which quite equalled that of Charlemagne, whilst he far surpassed him personally in literary accomplishments. At the age of 12, we are told, the Saxon prince learned to read, and through life carried a book in his bosom for daily study. He delighted in the old Saxon poems, which he caused to be collected and recited. He founded schools, gathered round him learned men from all countries, founded abbeys, and strove to effect the education of his people. But he was not merely a promoter of learning; he was himself a scholar and a teacher. He translated and adapted four most important works in Latin—the *Compilation of Orosius*, the one accessible book of universal history, the *History* of Bede, the *Consolations* of Boëthius, and the *Pastoral* of Pope Gregory. Alfred is thus at once the creator of English literature, as he is the founder of England as a nation—of its law, its government, its navy, and its national consciousness.

The reorganisation of Wessex was so effectual that after the Peace of Wedmore it was in no danger; although in 886, and again in 893, Alfred fought desperate wars with the Danes, wherein he gained complete victory both by sea and land. During his whole reign he exhibited an intense and many-sided activity; for he practically put himself at the head of the whole active life of his people—military, civil, judicial, industrial, artistic, intellectual, and religious. He sent a ship on a voyage of discovery to the North Sea, and despatched missions to Jerusalem and to Rome. He made Winchester what Charlemagne made Aix: the centre of intelligence, art, and culture for these northern islands. He

brought the learned Grimbald from St. Omer, encouraged foreign traders, and introduced continental artificers and artists. After a busy reign of 30 years, he died in 901, in his 52nd year, and was buried in the Old Minster of Winchester; thence his body was removed to the New Minster, and afterwards to Hyde Abbey, long since destroyed. No man now can point to the burying-place of the noblest of Englishmen. On the thousandth anniversary of his death (1901), his countrymen did fit honour to his memory at Winchester, where his statue now stands.

Alfred was in every sense the copy or reflection of Charlemagne, reproducing his work exactly on a far smaller scale, but in even more perfect forms. The connection between them was real and close. Egbert, Alfred's grandfather and predecessor, spent two years at the court of Charles. Alfred was brought up in part by his step-mother, Judith, daughter of Charles the Bald, grandson of Charlemagne. He was thus essentially Europeanised, with all the knowledge, culture, and traditions of the great Frank courts. The field of his wars and his government was indeed small. But his conduct in peace as in war displays the true eye of genius and the heroism of the born creator of nations. "So long as I have lived," wrote Alfred himself, "I have striven to live worthily, in hopes to leave to the men that come after a remembrance of me in good works."

He is perhaps the only man of action recorded in history of whom no defect of character and no crime is known. All the anecdotes represent him as a perfect hero, of dauntless courage, of romantic magnanimity, of intense piety, and entire simplicity; with exquisite geniality, grace, and unfailing sweetness. He almost equals Cæsar, Charlemagne, and Frederick in genius for war and for organisation, and far surpasses them all in purity and moral beauty. In foresight, tenacity, and practical sagacity, he is the peer of Richelieu, Cromwell, and William the Silent, whilst he stands alone in saintly simplicity, serenity, and perfection of every moral grace and charm. He was a saint, without superstition, imbecility, or fanaticism; a sagacious ruler who never sacrificed a principle; an enthusiastic student who never ceased to be a king. The popular traditions which for ages have attributed to Alfred so many English institutions are without adequate evidence. But they bear testimony to what is a solid fact, that England as a nation, as a maritime people, with representative institutions, with a paramount system of common law, with a strong central government in the interest of the people, with great educational institutions, with a national literature and history, dates from the impulse given by the hero King of Wessex. [F. H.]

R. Pauli: *Life of Alfred* (Eng. trans.). C. Plummer: *Life and Times of Alfred* (1902). *Alfred the Great*, ed. by A. Bowker (1899). F. Harrison: *Washington and other American Addresses* (1901). W. J. Sedgefield: *King Alfred's Boethius* (1900). *Memorials of King Alfred*, with six Early Chronicles and Alfred's Poems, ed. by Dr. Giles. 1863. E. A. Freeman: *Norman Conquest*, vol. i. and *Old English History*. J. R. Green: *History of the English People*, vol. i. ch. iii.

CHARLES MARTEL (*Karl the Hammer*), **b. abt. 685, d. 741 A.D.**

The week devoted to Chivalry, or warlike heroism inspired by religion, is presided over by Godfrey, the most eminent leader of the Crusades; it opens with CHARLES MARTEL, one of the first of the soldiers whose valour saved the civilisation and religion of a race against invasion.

Charles was the son of Pepin of Héristal, the founder of the Carlovingian dynasty, by a second and unlawful wife. On the death of Pepin in 714, he was excluded from the succession and imprisoned by Pepin's lawful wife in the interest of her own grandchild. Escaping, and putting himself at the head of the Franks of Austrasia, he succeeded, in a series of campaigns lasting many years, in reorganising the Frankish kingdom, and in obtaining for himself recognition as its chief. Of herculean size, of stern and fierce nature, the chief of the Franks passed his life in war, compelling Aquitaine, Franconia, Swabia, Bavaria, and Saxony to submit to the rule of the Franks.

The great glory of his life was his defeat of the Arabs of Spain. The Musulmans had been masters of the Peninsula since 711; two years later they poured into Gaul, and established themselves on the shores of the Mediterranean. Within 20 years they had overrun the country as far as the Loire. All through the summer of the year 732 Charles was busy gathering his hosts to his standard from the Northern Sea and the Black Forest to the British Channel and the Bay of Biscay. He met the Arab army in the plateau near Poitiers (October 732). The fate of Europe and of Christendom, it was believed, and not without reason, hung on the issue. For seven days the two armies stood facing each other, engaging in partial skirmishes. At daybreak on the eighth day, the masses of the Arab cavalry were hurled against the serried lines of the Franks with cries of *Allah Akbar*. All day the battle raged. Sunset put an end to the carnage, and in the night the remnants of the Arab host withdrew. Enormous booty remained with the victors. Charles completed his victory by establishing the Frankish rule over the whole of Gaul. He was about to pass into Italy on the invitation of Pope Gregory III., when death overtook him (October 741), and he was buried at Saint-Denis.

Charles Martel was in many things the prototype of his mighty grandson, Charlemagne. Almost his equal as a soldier and organiser of victory, he is utterly without the respect for intellect and religion which marked the nobler Charles. The necessities of his kingdom, rather than rapacity, led him to seize much property of the Church, for which the transalpine ecclesiastics bitterly denounced him, a condemnation which was even repeated by Dante. His glory is to have saved Europe from Islam, to have stemmed the torrent of invasion both on north and on south, from Musulman and

Heathen, and to have prepared the foundations of the great Frank Empire. [F. H.]

B. L. H. Martin: *Histoire de France*, ii. 175-217. J. I. Mombert: *Charles the Great*, ch. i. T. Hodgkin: *Italy and her Invaders*, bks. vii. and viii.

THE CID (*Rodrigo Diaz de Bivar*), b. 1045, d. 1099.

The week of Chivalry and national heroism contains types taken from the history of all Western Europe—Italian, French, English, German, Spanish, Portuguese. The CID as the national hero of Spain is the obvious representative of that country. His place, too, is obviously next to Charles Martel, as being the most eminent soldier who checked the progress of the Musulmans in Spain.

Rodrigo Diaz de Bivar, the son of Diego de Bivar, a nobleman high in favour with Ferdinand I., King of Castile, became the hero of his countrymen in their long struggles with the Moors. His life has been surrounded by legend, so that few facts in his career are certain, and his character itself is variously presented to us according to the age of the poet or romancer. He is usually called *El mio Cid*, or My Lord (*Seid*)—and *Campeador*, or Champion. The most authentic account of him that we possess is in the poem of the Cid, of 3741 lines, written probably within a century of his death. It represents him as a fierce, adventurous, and not very scrupulous soldier; who is equally a source of jealousy to his sovereign and of terror to the Moslem. The poem knows but little of the romantic and graceful incidents which occur in the ballads, or of the tragic story which forms the plot of Corneille's *Cid*. The Cid, enamoured of Ximena, the daughter of Don Gomez, is called upon by his father to avenge by single combat an insult inflicted on him by Don Gomez. In the duel the hero kills the father of his beloved. She calls on King Ferdinand to punish the slayer of her father, but by the King's intervention is ultimately induced to marry him.

The Cid is represented in the romances as the type of fidelity to his wife and of domestic affection. His free and unsuspicious nature constantly exposes him to the attacks of jealous rivals. At last the King Alphonso, who owed his throne to the Cid, is led to seize all his goods, dispossess him of his castles, and banish him the kingdom. The banished hero raises an army and fights the Moors. At the news of Alphonso's distress, who was hard pressed by the Sultan of Morocco, the Cid returns to his help. His whole life was passed in battle with the Moslems, and his last exploit was the capture of Valencia. He was buried at Burgos, and his tomb, still shown, became a place of pilgrimage. His charger Babieca was buried in a garden near, and his two swords, *Colada* and *Tizona*, are still preserved. [F. H.]

G. Ticknor: *Hist. of Spanish Literature*, vol. i. ch. i. ii. vii. *Poème du Cid*: French trans. by Damas Hinard, 1858; and English trans. by J. H. Frere and also by J. Ormsby. Southey: *The Cid, Chronicle and Ballads*. U. R. Burke: *Hist. of Spain*.

TANCRED, d. 1112.

Tancred was the son of the Marquis Odo, surnamed the Good, and of Emma, sister of Robert Guiscard, the Norman conqueror of Apulia and Calabria. In the First Crusade, 1096, he followed his cousin Bohemond, Prince of Tarentum, son of Guiscard. By his father's side Tancred was an Italian, of the race of Montferrat of Piedmont. He was always regarded as the *preux chevalier* of the First Crusade, the most heroic in the campaign, and the most loyal and devoted of the chiefs, with the generosity and honour of the perfect knight. He is specially remembered for his chivalrous courtesy, and he was the nearest approach to the ideal champion of Tasso. Whilst remaining throughout the war second in rank to the ruling princes who brought armies of their own, and without the authority or wisdom of Godfrey, Tancred has left the fairest and most brilliant memory in the First Crusade. Tancred was the last to do homage to the Eastern Emperor, the most resolute in the terrible siege of Antioch, the first with Godfrey to mount the walls of Jerusalem. Tancred remained with Godfrey in his kingdom of Jerusalem ; and on his death (1100), he followed his cousin Bohemond to his principality of Antioch, which he ruled as regent for nearly nine years. He died 1112, of a wound, in the prime of manhood, leaving an untarnished name for chivalry—"the bravest of the brave." [F. H.]

J. F. Michaud : *Histoire des Croisades*, vol. i. Sir G. Cox : *The Crusades*, 1877. Tasso : *Gerus. Lib.* vi. See also under Godfrey. Tancred is buried at Antioch.

RICHARD CŒUR DE LION, b. 1157, d. 1199.

The place given to Richard i. in the Calendar in the week of Godfrey and between Saladin, the Cid, and Tancred, shows that he is recorded solely as a type of the knight, and not as ruler or statesman. It is not with the King that we are concerned, but merely with the Crusader. Richard i. was the second son of Henry ii. and Eleanor of Aquitaine, born 1157, and succeeded in 1189, at the age of 32, to the vast kingdom of his father reaching from the Tweed to the Pyrenees. He had already taken the cross, and he at once resolved to march to the Holy Land. Jerusalem had been retaken by the Saracens, and its last king had been captured by Saladin in the battle of Tiberias.

Europe made a great effort in the Third Crusade—a combined expedition of the Emperor Frederick Barbarossa, Philip Augustus, King of France, and Richard i. of England. Richard raised vast sums by the sale and pledge of the crown property, and in 1190 he set out to Sicily. There he quarrelled with Philip, and delayed some months. On his voyage he took Cyprus, and gave it to Guy

de Lusignan. The following year they reached Palestine, where, after desperate fighting they took Acre. Here a fresh quarrel arose with Philip, who returned. Richard still continued the campaign, defeated Saladin in a great battle at Cæsarea; but, failing to take Jerusalem, and being deserted by most of his allies, he set sail for Europe, was captured and held to ransom in Austria. He returned to England after four years' absence, and was again crowned. The latter years of his reign, almost the whole of which was passed out of England, were occupied in a war with Philip Augustus for the possession of Normandy. Richard was killed in 1199, whilst attacking the castle of Châlus in the Limousin.

Richard's place in the Calendar is entirely due to his world-wide and immortal fame as the type of Crusader, and chivalrous soldier; and it is an example of the relative spirit which animates this roll of heroes that it retains the name of one who was in many respects so evil a man and so bad a ruler. In spite of ferocity, injustice, greed, and self-will, he is still held in honour for the romantic courage with which he flung aside all considerations of prudence and policy to stem the advance of the Saracens, for his unrivalled heroism in the field, and the courtly generosity which he often showed to noble enemies. With all his crimes as a ruler and his vices as a man, the name of Richard Cœur-de-Lion lives in the memory of the East as well as the West as the first soldier of his age and the type of the splendid knight. [F. H.]

Chronicles of the Crusades; Richard of Devizes; Geoffrey de Vinsauf, in Bohn's Stand. Lib. H. W. C. Davis: *England under the Normans and the Angevins*, ch. xi.-xiii. Scott: *The Talisman*; *Ivanhoe*. See also under GODFREY. Richard is buried at Fontevraud.

SALADIN (*Salah-ed-Deen*), b. 1137, d. 1193.

SALADIN stands next to Richard I. and Tancred, since we are bound to honour the chivalry and patriotism of the Musulman defenders of the Holy Land equally with that of the Crusaders. The general interests of civilisation required that the Saracens should be arrested in their invasion of Europe; and the cause of Christianity was, on the whole, superior to that of Islam. But in all qualities of the soldier and patriot, the Saracen was the equal of the Crusader; and Saladin was the peer of Tancred himself, and in most personal qualities the superior of Cœur-de-Lion.

Saladin was a chief of a Turcoman tribe, who served Noureddin, the Sultan of Aleppo; and, in 1171, he suppressed the heretic Khalifate in Egypt, and, succeeding to the power of Noureddin, he made himself master of Egypt and Syria. Then, crushing the last remnants of the Latin kingdom in the battle of Tiberias, he reconquered Jerusalem and the whole of Palestine and Antioch, 1187. During the Third Crusade he defended Jerusalem against the united power of the Western kings, and forced them to retreat under a

truce, 1192. He died in the following year, at the age of 55, when his empire shortly fell to pieces. In generosity, humanity, and good faith, in sagacity as a statesman, and in skill as a general, Saladin surpasses his noblest Christian rivals. And if he fell short of the personal heroism of Richard, he was quite his peer in chivalry and vastly his superior as a ruler. [F. H.]

S. L. Poole: *Saladin*. See also under RICHARD I. and GODFREY. Saladin is buried at Damascus.

JOAN OF ARC (*Jeanne Darc, Maid of Orleans*), b. 1412, d. 1431.

The wonderful girl who recalled France to life from the lowest abyss of her sufferings in the fifteenth century, was the daughter of Jacques Darc and Isabeau Romée, poor peasants, of a family of serfs established at Domremi, on the left bank of the Meuse, some miles from Vaucouleurs, between Champagne and Lorraine. She was born there, 6th January 1412; and legend has surrounded her early life with presage of a saintly career. The frightful war which had dismembered and desolated France since the fatal day of Agincourt, 1415, was at its acme; France was torn in fragments by factions and treason; the feeble voluptuary, Charles VII., was only nominally King of the south and centre, and had withdrawn behind the Loire in despair; Orleans, besieged by the English under the Regent, Duke of Bedford, alone held the invaders at bay. The girl Jeanne had been brought up in the midst of the horrors of war and the misery of the people; and had long seen visions and heard voices from heaven, summoning her to save France.

At length, early in the year 1429—she was then in her 18th year—she broke away from her parents, assumed man's clothes and armour, and, persuading a few gentlemen and a crowd of the towns-people of Vaucouleurs to believe in her mission, set forth to the King at Chinon. There her sublime confidence, her simple purity, and instinctive sagacity won admiration in a debauched and cynical court. She was sent forth at the head of a force of cavalry, threw herself into Orleans, and within two weeks routed and drove off the English armies. Town after town was recovered, and the invaders defeated in a series of encounters. Within two months Rheims was recovered, and the King crowned in the ancient cathedral. This secured the throne to the native King as against the claims of the infant Henry VI. of England, roused patriotic enthusiasm throughout the divided nation, and created a profound belief in the supernatural mission of the Maid. From Rheims she urged on the recovery of France and of the capital. Before Paris she was wounded and repulsed (September 1429); the King listened to the counsels of jealousy, treason, and despair: withdrew again behind the Loire, and disbanded his army.

The short military career of the Maid was practically over; her martyrdom remained. In spite of her entreaties and exhortations, the unwarlike King and his counsellors wasted her genius and her ardour in trivial and hopeless expeditions. After a series of petty exploits she was taken prisoner by the Burgundians, at Compiègne, on the Oise, May 1430; was sold for 10,000 pieces of gold to the English, who looked on her as equivalent to an entire army. The plan of the invaders was to destroy the glory and degrade the reputation of the national heroine. In this they were seconded by the infamous fanaticism of the jurists, theologians, and ecclesiastics of France, who made themselves the tools of the tyrants of their country, and were directed by Cauchon, Bishop of Beauvais. For five months the inspired girl held her own with martyr-like nobility of soul against the venomous artifices of the priests, the ferocity of the English soldiers, and the infernal malice of her captors, who exhausted their skill in plots to crush her by physical, moral, and spiritual tortures, and to dishonour her in person and in character before they consigned her to a horrid death.

History and martyrology present no nobler picture than that of the saintlike girl who confronted, alone, the apathy of those she had saved, the cruel abandonment of her own nation, the savage arts of churchmen, and the brutality of soldiery and populace. After a long-drawn sacrifice, she was solemnly condemned as a heretic and apostate, and burned alive in the old market place of Rouen, May 30, 1431, with every circumstance of brutal ferocity.

The heroine of France, the greatest martyr of the people recorded in history, died in her 20th year, after a public career of two years. The Church, which was the instrument of her martyrdom, has only lately canonised her though she was beatified locally in 1908, not for her services to her country but for alleged miracles in healing the sick; and France only recognised, after the disasters of 1870, that the Maid was the greatest of her popular heroes. It seems as if her worship were about to supersede that of the Virgin herself for all Republican France. It would be a complete misreading of history to regard Jeanne Darc as a mere enthusiast and visionary. As two eminent French historians have shown, it was natural that the restoration of France from despair amidst the effete corruption of Monarchy, Church, and Feudal aristocracy should come from the depths of the people, and should be personified in a woman. All that was sublime in the Catholic religion, all that was heroic in the French race, and all that was self-devoted in woman was incarnate in Jeanne Darc. Her passionate patriotism was equalled by her womanly piety, her courage by her faith, and her inborn rectitude of nature by her genius for affairs. In all great things, civil and military, her judgment was the true one; and her vision of the possibilities was that of unfailing genius. Her consummate skill in war was attested by the greatest soldiers of her time. And as strategy was in its infancy, and the conditions required only

daring and self-confidence, no miracle is needed to explain her success. Her marvellous story and her boundless ascendancy over the minds of men are natural effects of a heroic nature working in a situation of intense passion and excitement. Her genius is all her own. Her faultless bearing under persecution and treachery places her beside the greatest martyrs of the world's history.

[F. H.]

H. L. H. Martin: *Histoire de France*, bk. xxxv. xxxvi. (reprinted separately). J. Michelet: *Hist. de France*, bk. x. G. Hanotaux: *Jeanne d'Arc* (1911). A. France: *Life of Jeanne d'Arc* (Eng. trans., 1909). H. Wallon: *Jeanne d'Arc*, édit. illustrée, Paris, 1876. *Revue Occidentale*, 1887, 89, 90. J. Cotter Morison: *Joan of Arc; a Lecture*. Quicherat: *Procès, etc.* D. Murray: *Jeanne d'Arc*.

MARINA, b. abt. 1505, d. abt. 1530.

The story of this young Mexican Princess is one of the most singular in history, as is her place in the Calendar. She was the interpreter, friend, and mistress of Fernando Cortes, and greatly assisted him in his conquest of Mexico, and in disposing the native population to Christianity and submission. She was the daughter of an Indian chief in the southern province of Mexico. On her father's death she had been sold as a slave by her barbarous mother to make way for her half-brother. On the first arrival of Cortes, in his Mexican expedition, she was presented to the chief as one of 20 young slaves. One of the main necessities of the invader was some method of communication, as no Spaniard knew the Mexican language. MARINA, as the Mexican slave was named in baptism, was found to be capable of acting as interpreter. She was "beautiful as a goddess," we are told; "handsome, clever, and eager to be useful." She was also a woman of extraordinary courage, sagacity, and generosity. Cortes attached her to himself as interpreter, trusted her with his most important negotiations, loved her as his mistress, and had by her a son. She was true and faithful to him in his extraordinary career, and of immense service in carrying out his designs. Indeed, Helps says, "without her aid his conquest of Mexico would never have been accomplished."

Next to that of Cortes himself, her influence was of the greatest importance in maintaining peace between the two races. The Spanish conquerors treated her with the utmost honour; and the native Indians regarded her as their good genius. Their name for Cortes himself was Malintzin, or the lord of Marina (*Malinche*). She was long venerated by the natives as a semi-divine patroness, and the tradition of the good Indian Princess still lingers in the country round the capital. Her place in the Calendar beside Jeanne Darc marks her as the type of the woman who, rising from the lowliest place in the midst of a conquered race, devoted her genius and her sympathy to alleviate the oppression of a foreign invader. What Joan did by heroism, Marina sought to do by love and sagacity.

It is noteworthy that Cortes, like Pizarro and other conquerors, round whose names gather such memories of blood and horror, has no place in the Calendar. The Christianisation of an Indian race is represented only by the name of a captive woman, the concubine of their conqueror. [F. H.]

W. H. Prescott : *Conquest of Mexico*, bk. vii. ch. iii. A. Helps : *Life of Cortes*.

ALBUQUERQUE (*Affonso Alboquerque*), b. 1453, d. 1515.

The great seaman and captain who formed the short-lived Portuguese Empire in the Indies belonged to one of the most illustrious families of Portugal, descended from an illegitimate branch of the royal house. He was born in 1453 near Lisbon, educated at the court of Alphonso v., and afterwards attached to the household of John II. After a long career of arms in Africa, and of public service in Europe, he made his first voyage to India in 1503 (*ætat.* 50). Three years later he took part in the great expedition of Tristan da Cunha to the coast of Africa, and thence to India.

ALBUQUERQUE, receiving a separate command, took Ormuz, a central port at the entrance to the Persian Gulf. He was forced to withdraw and retired to Socotra, an island off the extreme eastern point of Africa. Having obtained reinforcements in 1508, he set sail for the Malabar coast, on the west of Hindostan, where he was invested with the office of commander-in-chief ; and there, in seven years of incessant warfare and policy, he built up the Portuguese Empire in India—establishing its centre at Goa, one of the few territories which Portugal still retains in the East. He then planted the Portuguese power at Malacca, in the Malay Peninsula, and ultimately retook Ormuz, in the Persian Gulf. He had hardly done so, when he was superseded by orders from Lisbon ; and, falling sick, he died of vexation and exhaustion in his 63rd year, 1515. He was buried at Goa, and ultimately his bones were transported to Portugal. His last words were : " I have won the hatred of men for the sake of the King ; I am disgraced by the King for the sake of men ! Miserable old man, it is time to die ! "

Albuquerque was undoubtedly one of the great conquering heroes and rulers of his wonderful epoch, which brought into view the unity of the East and the West, and completed the sense of common life on the planet. But he is not placed in the Calendar with Columbus and Vasco da Gama as one of the great discoverers. He was a chivalrous soldier and a consummate administrator, with the eye of genius for imperial positions and commercial development. He was ambitious, self-willed, unscrupulous, and remorseless in achieving his ends, and gave but too many grounds for the jealousy of the home government to suspect his designs.

His real title to honour is his character for justice as a ruler, and as one who could win the confidence of the natives whom he

conquered and governed. It is said that both Musulmans and Hindus on the Malabar Coast made pilgrimages to his tomb at Goa to implore protection against the tyranny of his successors. The guiding spirit of the Portuguese, as was that of other European Powers in that age, was first to found Christianity in Africa and in the East, and, secondly, to secure to themselves the exclusive control of the commerce. In both they showed a fanatical and unscrupulous narrowness of view. Albuquerque, whilst one of the greatest of the men who carried out this policy, was superior to his orders and to his age; and as a real hero and man of genius he instinctively felt the necessity for justice and wisdom to found any permanent empire. [F. H.]

H. M. Stephens: *Albuquerque.* R. S. Whiteway: *Rise of Portuguese Power in India.*

RALEIGH (*Sir Walter Ralegh*), b. 1552, d. 1618.

RALEIGH, one of the most extraordinary types of the versatility of the Renascence, the contemporary of Shakespeare, was at once soldier, seaman, discoverer, general, statesman, courtier, orator, poet, and historian. He was born in Devonshire, 1552, of an honourable and famous race on both sides, passed some time at Oxford (*ætat.* 16), and in the following year began his career of arms as a volunteer in aid of the Huguenots in France, where he served five years under Coligny and Henry of Navarre. He then served under William of Orange in the Netherlands. In 1579 (*ætat.* 27) he first took part in an expedition to America under his half-brother, Sir Humphrey Gilbert.

Winning the favour, and possibly the affection, of the Queen, Elizabeth, who loaded him with honours and wealth, Raleigh obtained, in 1584, a patent authorising him to plant and colonise any territories which he might discover in North America not being in the possession of any Christian Power. For five years he endeavoured, by a series of expeditions, to colonise the present Virginia. This proved at last beyond his resources, and he made over his patent to a company of merchants. There was but little immediate result from this expedition, except the introduction of a new variety of tobacco and the potato, both of which are attributed to Raleigh.

It is to his daring and romantic attempts to colonise America that Raleigh owes his place in the Calendar, and not to his incessant wars, intrigues, adventures, and literary undertakings. He was the implacable enemy of Spain, and took part with honour in the repulse of the Armada in 1588, and in many expeditions and wars against Spain, both in the Old World and the New. In 1595 he made his first voyage to the West Indies and to Guiana, of which he published an extravagant account. On the death of Elizabeth he was thrown into prison on a charge of treason, and lay in the

Tower for 13 years. Here he occupied himself with his *History of the World*, and a variety of scientific and literary pursuits. In 1617 he was released to make his second expedition to Guiana, which proved a total failure. On his return he was cruelly sacrificed by James to the hatred of Spain, and executed in Palace Yard on the old sentence (1618), in his 66th year. He is buried in St. Margaret's Church, Westminster.

Raleigh was a man of extraordinary genius, audacity, capacities, and attainments—unscrupulous, ambitious, and rapacious. But his originality, his courage, and chivalrous bearing have endeared him to after ages almost as much as to his own. He was the friend of the poet Spenser, and must have been known to Shakespeare. His permanent title to honour will be that of those who first connected the Old and the New World, bringing to the discovery of unknown races and regions something of the chivalrous self-reliance which animated the Crusades. [F. H.]

W. Stebbing: *Sir W. Raleigh*. E. W. Gosse: *Raleigh*. M. A. S. Hume: *Sir Walter Raleigh*.

BAYARD (*Pierre du Terrail*), b. 1476, d. 1524.

Pierre du TERRAIL was born of a noble family of soldiers at their ancestral castle of Bayart (not Bayard), near Grenoble, in 1476. His paternal ancestors were killed in battle, one at Agincourt, and one at Poitiers. He was early devoted to arms, and at the age of 13 was made page to the Duke of Savoy. Thence he passed to the service of Charles VIII., and at the age of 18 was already regarded as one of the most perfect knights of his time. He accompanied Charles in his campaign in Italy, and distinguished himself at the battle of Fornovo. He served under Louis XII. in the campaign of the Milanese, and defended the bridge of Garigliano alone, against a body of Spaniards. In the subsequent wars he decided the victory of Agnadello. He was severely wounded at Brescia; and the protection he gave to the lady and her daughters who nursed him in his illness is famous as a rare instance of generosity. He fought bravely and was taken prisoner at the battle of the Spurs, and subsequently was liberated with great honour by Henry VIII.

On the accession of Francis I., Bayard served in the Italian campaign, and greatly distinguished himself at the victory of Marignano. Francis regarded Bayard as the chief agent in the victory, and had himself formally knighted by the hero on the field. In 1522 Bayard delayed the advance of Charles V. by the defence of Mezières. In 1524 he served in Italy, against the Imperialists under the traitor Constable de Bourbon, and at the battle of the Sesia he received his death-wound from a cannon-shot, at the age of 48. As he lay under a tree with his face to the enemy, having ordered all his own people to escape by retreat, the whole of the Imperialist chiefs

crowded to see the renowned soldier. The Constable of Bourbon came with the rest to express his pity. "My Lord," said Bayard, "I thank you; I do not pity myself. I die like an honest man. I die serving my king. You are the man to be pitied, who are bearing arms against your prince, your country, and your oath." He then betook himself to prayer, and died with invocations to Christ on his lips.

Bayard was for 30 years the mirror of chivalry, and was regarded throughout Europe as the type of the perfect knight. Though he never held separate command, his irresistible prowess and his genius for tactics decided many a battle. Francis I. declared that he was worth more than a hundred captains, and it was said that he was himself an army. They gave him for device, "*Vires agminis unus habet*," and for a title, "The knight without fear and without reproach." His historians declare that he was born with all the virtues, and without any vice. He was pious, generous, unselfish, modest, temperate, pure, and magnanimous. His courage and prowess in arms were those of a knight of romance; his generosity was princely; and his courtesy unfailing. Bayard is the last representative of the mediæval chivalry in its double character of Catholic and Feudal, as he is, perhaps, the latest example of a warrior who won battles by personal feats of skill and courage. Firearms were fatal to heroism of this type; and Bayard, who died of a gunshot wound, always denounced the use of that arm. He is the last example of the chivalry which had lasted some five centuries. [F. H.]

Life, by the Loyal Serritor; often translated. His remains now lie in the Church of St. André at Grenoble.

GODFREY DE BOUILLON, b. 1058 (?), d. 1100.

GODFREY was a younger son of the Count of Boulogne; by his mother, a descendant of Charlemagne, he was Lord of Lorraine, taking his name from Bouillon in the Ardennes, and he was subsequently created Duke of Lorraine by the Emperor Henry IV. for his services in the field. When the first Crusade was resolved on at the Council of Clermont, 1095, Godfrey, who brought with him his two brothers, Eustace, Count of Boulogne, and Baldwin, ultimately his own successor, was marked out by his character and position as the leader of the host. He was already illustrious as a soldier on both sides of the Rhine; he was equally versed in the French and the Teutonic languages; and round his banner was gathered, it is said, an army made up of French, German, Lorraine, and Brabant elements to the extent of 80,000 foot and 10,000 horse.

The host set out in August, 1096, from the Meuse and the Moselle, through Germany, Hungary, and Bulgaria to Constantinople, the common rendezvous of the various armies. The body commanded

by Godfrey advanced with prudence, and without fighting, every step showing the wisdom and the ascendancy over men of their great leader. His march was marked neither by the atrocities nor the disasters of the earlier expeditions. With great skill, self-control, and generosity, he won a free passage across Hungary; compelled the Greek Emperor, Alexius, to release Hugh of Vermandois, a chief whom he had taken prisoner. By the alternate use of diplomacy and arms he induced the Emperor to act as his ally, and even to adopt him as his son. Godfrey resisted the importunities of Bohemond and other chiefs who urged him to divert the arms of the Crusaders to overthrow the Byzantine Empire, and he persuaded the leaders to do homage to the Emperor, and to engage to restore to him all lost possessions of the Empire that they might retake. It was not until the spring of 1097 that the Crusaders reached Asia, and thenceforward they marched as one army to Jerusalem.

When they mustered on the plains of Bithynia, they are said to have numbered 100,000 men on horses, armed with helmet and coat-of-mail, and certainly they were attended by many times that number on foot, beside priests, monks, women, and children. After taking Nicæa, and winning a desperate battle in Phrygia, they passed through incredible privations and difficulties down to the siege of Antioch. After eight months of wild warfare, and every extremity of famine, pestilence, and confusion, Antioch was finally taken; but when at length, in the spring of 1099, the Crusaders set forth to Jerusalem, they numbered but 40,000, of which only 1500 horse and 20,000 foot were said to be fit for service. During the two years that had passed since the Crusaders left the shores of the Bosporus, their march had been one story of desperate and incessant warfare, famine, and want of every kind; disease, the extremities of heat and cold, quarrels, disorder, improvidence, debauchery and fanaticism. In these trials Godfrey and Tancred stood out conspicuous for unshaken devotion and resolution. And Godfrey towered above all by his fortitude, his wisdom, his patience, and his personal ascendancy.

The siege of Jerusalem, where the garrison was more numerous than the assailants, and where every receptacle of water had been carefully destroyed, lasted for 30 days—days of intense suffering to the Crusaders. At last, after two days of furious battle, the Holy City was stormed, and Godfrey at one gate and Tancred at another were the first to enter it. Its capture was marked by indiscriminate carnage. The horses trod up to their knees in torrents of blood; the Jews were burnt alive in their synagogues; and promiscuous rapine was the reward of the survivors of three years of incredible suffering and struggle. After 460 years of subjection to the Moslem, the Holy City was freed; and in a solemn act of devotion Godfrey and his followers entered the Church of the Holy Sepulchre; and all, bareheaded and barefooted, in robes of white linen, with tears

and groans and every manifestation of ecstasy, knelt and offered praises to the Divine mercy. A further massacre of captives in cold blood followed—young and old, women and children, men and boys, were mingled in one bloody heap. The streets were then washed and the city purified.

By the voice of all Godfrey was chosen King of Jerusalem; but he refused any title save that of Baron and Defender of the Holy Sepulchre. He gained another great victory over the Khalif of Egypt, and died within a year of his election, July 1100. His short reign sufficed to show him as a wise, moderate, and just ruler, and to compile the famous *Assize of Jerusalem*, a complete code of Feudal Law, which continued in some form to be the law of the Eastern Latins for three centuries. The whole history of Godfrey presents him to us as the noblest type of his age: magnanimous, wise, provident, laborious, and just; of heroic courage and intense religious earnestness. Had he directed the Crusade with complete authority, it might have had a far different issue. He fully shared the sanguinary fanaticism and the superstitious folly of his time. To slaughter infidels wholesale was to him, as to them, an act of piety; to undertake the most impossible of tasks in absolute faith of Divine help was the only part worthy of a soldier of Christ. But so far as his absolute religion and the passions of his age admitted, the character of Godfrey is as pure and self-sacrificing as that of Alfred or St. Louis.

As a ruler, legislator, and creative statesman, Godfrey belongs to the rare order of men of which his mighty ancestor Charlemagne was chief—whom he so much resembles, and to whom he is so often compared—although his opportunities were far inferior to those of the Emperor of the West, and the scale on which he laboured in his short 42 years of life was so much smaller. Indeed the constitution of the Latin kingdom of Jerusalem, which endured for less than a century, was an admirable type of the Feudal State, and the *Assize of Jerusalem* has been justly called the *Corpus Juris* of Feudalism, "a precious monument of Feudal jurisprudence." It is one of the earliest specimens of a mediæval civil code, was much cited and imitated in Europe, and retained its authority for centuries. Godfrey has been called the Agamemnon and the Achilles of the First Crusade; and indeed no character in history has ever afforded so rich a subject for idealisation. He is the real hero of Tasso's poem and the grand lines in *Gerus. Lib.* bk. iii., are literal history as much as poetry:

> "Veramente è costui nato all' impero;
> Sì del regnar, del commandar sa l'arti:
> E non minor che Duce è Cavaliero."

[F. H.]

Fleury: *Eccles. Hist.*, 6th discourse. Gibbon: ch. lviii. Guizot: *Civilis. in Europe*, lect. 8. J. F. Michaud: *Hist. des Croisades*, vol. i. T. A. Archer and C. A. Kingsford: *The Crusades*. W. B. Stevenson: *The Crusaders in the East* (1907). B. L. H. Martin: *Hist. de France*, vol. iii. bk. xviii. For Literature, H. Von Sybel: *The Hist. and Lit. of the Crusades* (Eng. trans.). Godfrey was buried in the Church of the Holy Sepulchre at Jerusalem.

ST. LEO THE GREAT, b. 390 d. 461, A.D.

The third week of the month devoted to *Feudal Civilisation* contains the names of five Popes between the fifth and the thirteenth centuries, who represent the influence of the central See in organising Western Christendom rather than the spiritual development of the Catholic faith. Of these the first is LEO the Great, the chief founder of the religious supremacy of the See of Rome.

Leo was a Roman, of Tuscan family, born in Rome about 390. As a young man he was employed in missions to distant Churches by the Bishops of Rome and he was early brought into relations with St. Augustine and Cyril of Alexandria. His middle life was passed in a series of embassies of the highest importance. During one of these duties—a mission into Gaul to reconcile Aëtius with Albinus—Leo was chosen Pope by acclamation and the general voice of the clergy, senate, and people (440), he being then about 50. He at once entered on his office with the spirit of an ancient Dictator of the Republic. He introduced a practice almost unknown to his predecessors—that of preaching from his own pulpit; and his powerful sermons are the first from the Roman Pontiffs that have survived. They are simple, severe, short, and nervous, like the speeches of Cæsar from the rostrum, and are entirely occupied with the faith and life of the true Christian.

Leo is the great enemy of heresy, especially of the heresy of the Manichæans; the trenchant censor of Pagan morality and worldliness. His vehement campaign against the heresy and the crimes of Manichæism was followed by a further onslaught on the Pelagians, the Priscillians, and finally the heresy of Eutyches of Constantinople. In a long life of polemical activity Leo procured the assent of the Western Church to a large body of doctrine since recognised as orthodox. In 452, Attila, recovering from his defeat at Châlons by Aëtius, descended with his Huns upon Italy. The peninsula and its capital was at his mercy. Leo went forth at the head of an embassy to appease the terrible conqueror. By his dignity, earnestness, and eloquence, he induced the barbarian to withdraw beyond the Danube on payment of a tribute. Three years later the Vandal Genseric, invading Italy from Africa, took and sacked Rome (455). Leo again went forth as a mediator, but could obtain nothing but some mitigation of the conqueror's licence. The remaining years of Leo's pontificate were passed in efforts to mitigate the ruin caused by the Vandals, in strengthening the moral authority of the Church, and in restoring and rebuilding the churches dedicated to the great Apostles. The ruin of Rome as a capital by the sack of Genseric (455), and the manifest collapse of the Empire, were the foundation of Rome as the spiritual centre of the West.

Leo, a Roman of the Romans, the Cato or Scipio of the Church, made Rome the centre of a new Spiritual Empire rising out of the ruins of the old Material Empire, of which St. Augustine had foreseen the advent. His pontificate is the first great epoch in the history of Latin Christianity, when Rome definitively acceded to a general primacy over the Churches of the West. During his tenure of the See, Leo is the only great name in the Empire, and concentrates on himself and on his office the interest of the West. He first fixed Rome in its rigid and strenuous orthodoxy : he first made Rome the spiritual capital of the Latin races and of Western Europe.

[F. H.]

Fleury : *Eccles. Hist.*, bks. xxvi.-xxix. H. H. Milman : *Latin Christianity*, bk. ii. ch. iv. T. Hodgkin : *Italy and her Invaders*, bk. ii. F. Gregorovius : *Hist. of the City of Rome in the Mid. Ages* (Eng. trans.), bk. i. ch. 5-7. Leo is buried in St. Peter's.

LEO IV. (*Pope from* 847-855 A.D.).

LEO, a Roman, who had held ecclesiastical office under preceding pontiffs, was suddenly called to the Papacy on the death of Sergius II., by the urgent danger impending over Italy and Rome. The weak son of Charles the Great was not long dead ; and the Saracens were masters of Sicily and a large part of the Mediterranean. In 847 they were threatening Rome ; and Leo IV. was summarily chosen to direct the defence of the city. This he did with great energy and signal success : he summoned the maritime population of Naples and Gaeta to defend Ostia, the Roman port ; raised an army, and fortified the Church of St. Peter. Not content with turning the sacred edifice into a fortress, he determined to protect it by a new fortified quarter. The Emperor Lothair, far from resenting his hasty election as Pope before receiving the imperial sanction, assisted the project. And in four years the work was completed. A new walled suburb was created on the right bank of the Tiber, practically outside the classical city of Rome, on what had been the Vatican Hill. On the 27th June 852, Leo formally consecrated it by his own name, and gave the suburb the name of the Leonine city. Within its walls lay the Church and relics of the Apostle, the palace of the Pope and his suite, a body-guard and a faithful body of townsmen, securely entrenched on the opposite side of the Tiber. It was in fact a temporal sovereignty in miniature, and it had long sufficed as a safe asylum to guarantee the independence of the Pope. Leo's papacy of eight years was mainly engrossed with the formation of his new city, with restoring the churches and adorning the city of Rome. He is thus the complement of Leo I. and the forerunner of Hildebrand. [F. H.]

H. H. Milman : *Latin Christianity*, bk. v. ch. iii. F. Gregorovius : *Hist. of the City of Rome in the Mid. Ages* (Eng. trans.), bk. v. ch. 3. Leo IV. is buried in St. Peter's.

GERBERT (*Pope Silvester II.*), d. 1003.

GERBERT, the foremost Churchman of his age and one of the greatest of the Popes, was born about 940, at Avrillac, in Auvergne, of obscure origin and humble parentage. He was early received into the Cluniac monastery there, and became its most distinguished scholar. Borel, Count of Barcelona, carried him to Spain, where his insatiable thirst for knowledge urged him to pursue the scientific, and especially the mathematical, knowledge of the Arab schools. He is said to have visited Seville and Cordova, then great centres of Mohammedan learning, and to have been the first Christian priest to master the arithmetic, geometry, and astronomy which the Arabs had inherited from the Greeks. Count Borel took the young monk to Rome, where he was recognised as a prodigy of knowledge by Pope John XII., and recommended to the Emperor, Otho the Great. Thence he became the friend and secretary of Adalberon, Archbishop of Rheims, where he opened a famous school, in which all that was then known was taught. It comprised rhetoric, logic, as known to Aristotle and Cicero, music, geometry, astronomy, and the Roman poets.

For ten years (978-988) Gerbert practically directed the Church in central France, being the inspiring genius of the Archbishop of Rheims, and the acknowledged head of Western learning. He was the teacher of the successive German Emperors, Otho II. and Otho III., the friend and supporter of Hugh Capet, and the teacher of his son, Robert I. It is impossible here to follow in detail the active and the stormy career of Gerbert through the changing and violent movements of the 10th century. He is alternately triumphant and defeated in the shifting scenes of policy. In 991 Gerbert is elected Archbishop of Rheims, is deposed by the Papal Legate in Council, 996; he takes refuge with the Emperor Otto III., and is made Archbishop of Ravenna in 998. In the following year he was chosen Pope, and took the significant name of Silvester II. (Silvester I. was the Pope who, in 325, called the Council of Nice and presided over the Christian Church of Constantine.)

For four years (999-1003) Silvester directed the intricate policy of the Church with consummate skill and energy. Much of his previous action had been inspired with aims of a Gallican and anti-Papal character. But once on the throne of St. Peter, Gerbert assumes the mission of the Church to be the spiritual organisation of Europe. He is the forerunner of Hildebrand and Alexander III., and even in a far minor degree of St. Bernard and Aquinas. In spite of the worldly intrigues in which he was involved, his intense piety and personal morality produced a deep effect on his age; and, though he leaves on posterity no sense of originality as a thinker, he was the first Churchman who impressed his age with a reverence for the science and philosophy of the ancient world. His extra-

ordinary attainments in a knowledge absolutely closed to his contemporaries and his mechanical gifts, led to the myth of his being a magician and to the tales of diabolic agency to which mediæval legend attributed his power and his learning.

As with Albert the Great, and Roger Bacon in the 13th century, his secular knowledge was regarded as a proof of the black art. His extant writings show him as a man of extraordinary energy, versatility, force of character and of mind. The scientific and philosophical works attributed to him have been the subject of critical controversy and great diversity of opinion. They have no value but a historical one. Pope Silvester, who is the first French Pope, is the real author of the consecration given by the Church to the dynasty of Hugh Capet (987). It was he who constituted Hungary and Poland as Christian kingdoms, and a century before Urban II. he preached the necessity of a Crusade. He appears in the Calendar by his personal name of Gerbert, and not his official title of Silvester II., to mark that his great work was achieved, not as a Pope, but as a French prelate, especially in his action in consecrating the royal house of Hugh Capet. [F. H.]

Fleury: *Eccles. Hist.* bk. lvii. H. H. Milman: *Latin Christianity*, bk. v. ch. xiii. J. Michelet: *Hist. de France*, bk. iv. B. Hauréau: in *Biogr. Univ.* F. Gregorovius: *Hist. of the City of Rome in the Mid. Ages* (Eng. trans.), bk. vi. ch. 6, 7. Gerbert is buried in St. John Lateran.

PETER DAMIANI, b. 988, d. 1072.

The famous reformer of the Church in the 11th century was born at Ravenna in 988, of a poor and obscure family. He was educated by a brother, Damiani, Archdeacon of Ravenna, whose name he added to his own name of Peter. He was trained at Faenza and at Parma, and as a youth became distinguished as a student and teacher. But a passion for asceticism took possession of the popular professor: his days were spent in prayer, fasting, and penance, his nights in watching and fierce striving to subdue the flesh. He retired to the hermitage of Font-Avellana in Umbria, at the foot of the Apennines. He was successively named abbot and cardinal (1057).

During the Papacy of Nicholas II. and Alexander II., Damiani was the reforming spirit of the Church—as the latter called him the *Eye of the Holy See*. His life was one long, violent, and fanatical effort to extirpate from the Church simony, worldliness, and sexual immorality. Against the practice of the marriage or concubinage of the priesthood Damiani in particular fulminates with a passionate and almost rabid invective. His famous work *Gomorrhæus* explains by its very title the coarseness of his method. As ascetic and hot-gospeller Damiani was the *Stylites* or Knox of his age. But in spite of the ascetic fanaticism of his character, Damiani was one of the main authors of the reform of the Church in the 11th century, and,

with Hildebrand, the real founder of the rule of celibacy for the secular priesthood. He is much more than a monkish zealot. He was successful in a series of missions by which the Popes restrained the abuses of the Church. And he was a vigorous supporter of the unity and discipline of the Papacy. His works remain, with all their frantic violence of language, monuments of a sincere zeal for purity and right. So soon as he was permitted to withdraw from public life, Damiani retired to his hermitage at Faenza, and there, where he is still the object of an annual commemoration, he died at the age of 84, continuing his ascetic rigours to the last. [F. H.]

H. H. Milman: *Latin Christianity*, bk. vi. ch. i. F. Gregorovius: *Hist. of the City of Rome in the Mid. Ages* (Eng. trans.), bk. vii. ch. 3.

PETER THE HERMIT, fl. abt. 1094-1100.

Peter, who bore the name of the Hermit, was born at Amiens in Picardy, of a knightly family, and was at first a soldier in the service of the Counts of Boulogne. He soon abandoned wife and the world, retired to a monastery, and thence into a hermitage. Roused to make the pilgrimage to the Holy Sepulchre, he returned to Europe, shocked by what he had seen and heard of the sufferings of the Christians in Palestine. Pope Urban II., to whom a vision had urged Peter to appeal, warmly seconded his enthusiasm, and dismissed him to preach a joint expedition to free the Holy Places. Peter was small and mean in person, emaciated by his austerities, with a keen fine eye and living genius within him, and a gift of ready and burning eloquence. His life as a hermit and his strange experiences as a pilgrim had fired his soul with enthusiasm and made him a prey to dreams and visions. He traversed Italy, crossed the Alps, visited the princes of Gaul, and went through France, riding on an ass, bareheaded and barefoot, clad in a coarse garment, and bearing an immense crucifix, everywhere received as an inspired prophet. He preached with fervour to innumerable crowds in the churches, streets, and highways, calling on prince and people alike.

His passionate eloquence prepared for the enthusiasm which the Pope met at the Council of Clermont (1095), where the First Crusade was resolved on. The impatience of the people could not await the regular formation of armies, and early in the spring of 1096 a motley crowd of 40,000 of various nations, both sexes, and all ages, compelled Peter to lead them straight to the Holy Land. With inconceivable fatuity or simplicity, Peter led them to Constantinople, pillaging, slaying, and fighting by the way. The host reached Nicæa, where they were exterminated in a frightful massacre, by the Turks. Peter survived the slaughter, and attaching himself to the subsequent expedition led by Godfrey of Bouillon, he took part in the whole course of the Crusade. At the siege of Antioch

the fiery enthusiasm of Peter gave way before the pressure of famine, and he had begun to return homewards in despair till Tancred forced him to remain. At the final taking of Jerusalem (1099) the triumphant Crusaders fell at his feet, and offered up their thanks to the original inspirer of their expedition. The relative spirit of the Calendar admits the author of this wonderful effort, in spite of the blind fanaticism and criminal folly which the Hermit had displayed in practical conduct. [F. H.]

Gibbon : *Decline and Fall*, ch. lviii. See also under GODFREY. According to tradition Peter's remains are at Huy in Belgium.

SUGER, b. 1082, d. 1152.

The famous Regent of France and minister of Louis VII. (1137-1152) was born in the neighbourhood of St. Omer, in Artois, about 1082, of an obscure peasant family. At an early age he was educated in the Abbey of St. Denis, near Paris, and at the age of 14 he became there the fellow-student and companion of the Prince, afterwards Louis VI. or the Fat. For twenty years SUGER laboured in the interests of the abbey ; maintaining or adding to its possessions by legal ingenuity or by his skill in arms ; continually employed on missions by the Abbot Adam and by his friend King Louis VI. In 1122 Suger, then aged 40, became Abbot of St. Denis ; practically minister, and principal support of the monarchy.

His rule for thirty years within the abbey trebled its resources and made it the great centre of civilisation, as well as the chief barony of the Crown. He laboured to raise to their highest point the material and the moral resources of the abbey and of the kingdom alike, strengthening both together. He rebuilt the abbey church with extraordinary energy and in great splendour. It was dedicated in 1140. The western façade and towers are the work of Suger, and are amongst the earliest examples of the Romanesque style passing into the pointed Gothic (compare the façade of Notre-Dame at Paris, nearly 80 years later).

At the head of a great barony, and in effect the chief minister of the Crown, Suger at first indulged in somewhat secular state and worldly freedom. But the exhortations of St. Bernard (see the fine letter, No. lxxviii., A.D. 1127) recalled him to his ecclesiastical function, and thenceforward Suger established rigid discipline in his abbey, and practised strict austerity in his personal life. The last of the many missions intrusted by Louis VI. to his faithful minister was the marriage of his son to the fatal Eleanor of Guyenne, which more than doubled the possessions of the Crown. On their return Louis VI. was dead ; and the Prince, then a wayward and restless youth of 18, became Louis VII. (1137). Thenceforward Suger, till his own death fifteen years later, was practically viceroy of France.

In 1146 St. Bernard preached the Second Crusade at Vézelay, and in spite of the earnest remonstrances of Suger, who told the King that his true duties lay in France, Louis plunged into the disastrous compaign which ended in the fatal siege of Damascus. On the advice of St. Bernard, and with the concurrence of the prelates and barons, Suger was made Regent of the kingdom. For five years he proved himself one of the greatest rulers whom France ever had. He maintained peace and order everywhere, encouraged the rise of the towns, dispensed strict justice, and restored material prosperity, employing the resources of his abbey, whilst he sent large sums to the King in the Holy Land. Before his time the centre of France had been a waste. He introduced an agriculture and prosperity which were permanent, and repeopled the decayed district. Having at last induced the King to return to France (1149), he proposed to lead a fresh Crusade himself, when death cut short his project at the age of 70 (1152).

Suger was the first and one of the best of the great series of statesmen by whom France was made a kingdom. His leading idea was the creation of a central monarchy as a guarantee of peace and progress. The great instrument of this was the development of the *communes*, and by their aid the suppression of private war and feudal oppression. It is under Louis VI. and the administration of Suger, says Guizot, that there rises up the idea of a chief magistrate, charged with the maintenance of peace, the protection of the weak, the enforcing of justice, and the central depositary of the common interest against all local and personal ambition. "The duty of kings," says Suger himself, "is by their strong arm and their high prerogative to curb the insolence of the great who tear the State to pieces by their constant wars and ruin churches." In this task Suger himself often assisted the monarchy in arms at the head of the forces of his abbey. "The glory of the Church of God," said he, "consists in the union of the royalty and the priesthood." As a means to this end, the policy of Suger and of the two kings whom he guided, was to grant charters of freedom to the towns, and to emancipate the serfs. "Do not abandon your flock," wrote Suger to Louis in the Holy Land, "to the fury of the wolves." He has left a profound impression on the popular gratitude of his country, of a kind similar to that of Sully and Henry IV.

Suger was a scholar, fond of the Latin poets, and an author. He has given us a *Life of Louis VI.* and other works. He encouraged learning, collected a library, and began the famous *Chronicle of St. Denis*. Though far more the statesman than the priest, in spite of occasional differences, he commanded the love and admiration of St. Bernard, who addressed to him 12 of his extant epistles. The beautiful letter that the Abbot of Clairvaux addressed to the Abbot of St. Denis, who was then thought to be at the point of death (*Epist.* cclxvi.), is a striking memorial of the men and of their

age. "Man of God, tremble not in putting off the earthly man which seeks to drag thee down . . . the glory of the Lord awaiteth thee! How much do I long, dearest, to see thee again, so that the blessing of a dying saint may come on me! . . . Whether I come, or come not, remember that I have loved thee from the beginning, and will not cease to love thee to the end." [F. H.]

Suger: *Vie de Louis-le-Gros* (Guizot Coll.). B. L. H. Martin: *Hist. de France*, iii. 300-452. H. H. Milman: *Latin Christianity*, bk. viii. chap. vi. St. Bernard: *Epistol.* Guizot: *Civilisation in France*, lect. xii. Suger is buried at St. Denis.

ST. ELIGIUS (*Saint Eloi, St. Loo*), b. 588, d. 659 A.D.

ST. ELIGIUS is an early prototype of Suger, the low-born churchman-statesman. He was of humble parentage, probably of Gallo-Roman origin, and was born near Limoges in 588. He was early bound apprentice to a goldsmith in Limoges. His talents in this art recommended him to the King's goldsmith and head of the treasury in Paris. His wonderful skill and probity filled the King Clotaire with admiration; and he became master of the mint and chief adviser to that king and his successor, Dagobert. Under a succession of kings he became in effect chief minister and envoy, using his influence with the crown to found monasteries, hospitals, and convents. He still continued the practice of his art, using it solely for sacred purposes, and constructed a number of magnificent shrines for the relics of the chief saints of France.

In 639 he assembled a Council at Orleans for the repression of the Monothelite heresy and simony; and the next year, though still a layman, he was chosen Bishop of Noyon in place of St. Médard. From this time he devoted himself to apostolic work, labouring as a Christian missionary in Flanders and as far as the shores of the Baltic. He founded an immense number of monasteries, and became one of the most popular saints of France. He was distinguished for his humanity, simplicity, and laborious life, and has left a lasting impression on the public memory as the artisan-minister of the early monarchy. He is the patron saint of the smiths of all kinds: legends and works of art are full of his miraculous doings. It is as the precursor of the great Ministers of France that he has his place beside Suger. Many coins remain with his name; and sundry homilies and letters: these, like his life, breathe gentleness, charity, and piety. [F. H.]

St. Ouen: *Life*. Mrs. Jameson: *Sacred and Legendary Art*. He is buried in Noyon Cathedral.

ALEXANDER III., Pope, 1159, d. 1179.

ALEXANDER III., the successor of Adrian IV. (Nicolas Breakspeare), was for twenty years Pope during the great contest between Rome

and the Emperor Frederick Barbarossa. Alexander, then known as Roland, Chancellor of the see and Cardinal of St. Mark's, had been one of the ablest supporters and one of the most trusted legates of Adrian during his bold policy of founding an independent Church. On the death of Adrian (1159) the Chancellor Roland was elected Pope, whilst the imperial faction set up Victor IV. as anti-Pope. Alexander III. received the adhesion of France, Spain, England, Southern Italy, and the more powerful of the Orders ; but he was forced to take refuge in France, where he remained for three years under the protection of Louis VII.

During this time Alexander was most occupied by the cause of Becket, whose claims were in substance the same as those of the Pope himself, but whom it was most impolitic to support against the Pope's own powerful ally, Henry of Anjou. The subtle and changing policy of Alexander in this most difficult dilemma was carried out with consummate skill, much want of sincerity, but essential loyalty to his principles. The Emperor caused the election of a succession of anti-Popes ; but after a lifelong contest, Barbarossa felt himself humbled. The Pope rallied to his cause the whole of Italy and nearly all Europe, and at length, 18 years after his election as Pope, Alexander III. received at Venice the formal reconciliation and virtual submission of the Emperor—an issue effected by the Doge and Senate of Venice. Two years later Alexander III. died (1179) after a reign of 20 years, one of the most memorable in the history of the Papacy. It was Alexander III. who canonised St. Bernard as well as St. Thomas of Canterbury. With Adrian IV. he is the immediate link between Hildebrand and Innocent III. [F. H.]

H. H. Milman : *Latin Christianity*, bk. viii. ch. viii., ix. F. Gregorovius : *Hist. of the City of Rome in the Mid. Ages* (Eng. trans.), bk. viii. ch. 5, 6. Alexander is buried in St. John Lateran.

BECKET (*St. Thomas of Canterbury*), b. 1118, d. 1170.

Thomas BECKET was the son of Gilbert Becket, a native of Rouen, by the daughter of a burgher of Caen ; and was born in London, 1118, where his father was a merchant in good position. The young Thomas was educated by the monks of Merton in Surrey, and by his extraordinary abilities and acquirements was early recommended to Theobald, Archbishop of Canterbury. He was employed by him in negotiations of importance, and secured from the Pope the recognition of the Plantagenet dynasty on the English throne. In 1155, at the age of 37, he was made Chancellor, in which office during six years he bore himself as a great statesman, a bold soldier, and with almost royal splendour. In 1162 Henry II. forced Becket to become Archbishop.

As Primate Becket at once changed his whole life ; he became the most austere and devout of Churchmen, a stern assertor of the

liberties of the Church; he summarily resigned his office of Chancellor, and with it all his habits as courtier and servant of the King. Within the next year began the long strife between the King and the Archbishop, which was ended only by the murder of the Primate. The centre of the contest lay in the claim of the ecclesiastical power to a separate jurisdiction, and to complete independence as a European and not a national spiritual community. The claim of the temporal sovereignty was to enforce complete judicial authority over every subject, lay or clerical, within the realm, and to assert its right as supreme ruler within the kingdom. The mutual independence of spiritual and temporal authority was a problem far too complex and subtle to be solved in an age of personal autocracy and of absolute creeds. Still less could it be solved by two men of such fierce natures and aspiring genius as were Thomas Becket and Henry of Anjou.

The Constitutions of Clarendon, the formulas in which the demands of the King were embodied, contain little which has not been the law of our land since the Reformation. Their adoption in the 12th century would have been tantamount to the formal establishment of a national and an Erastian Church, and the official dissolution of the Catholic Church as an independent spiritual communion. It is as the fearless defender of a spiritual power, independent of, and able to modify the temporal sovereignty, that Becket is recognised as the complement of Alexander III. in the civilising mission of the Church of the 12th century. To feel his just claims on the reverence of posterity is not to praise the fierce and haughty character of the man, his violent pretensions, and worldly passions. The thrilling story of the great duel is a picture of combat between two mighty and overweening natures, each of which had a great cause to defend, whilst both disgraced it by outrageous violence.

The tale is well told in the *Short History* of J. R. Green; and it cannot be set forth in these limits. For six out of the eight years of his primacy, Becket lived in France as an exile, under the protection of Louis VII. of France and Pope Alexander III., and from thence he carried on a not unequal contest with the great King. After a formal but hollow reconciliation, effected by Louis and his bishops, Becket returned to England, and to his own cathedral. He landed on the Kentish coast on 1st December 1170: on the 29th December he was brutally murdered at the altar of Canterbury by four knights of the King's household. The horror and the fury of all Christendom are amongst the most striking facts of the Middle Ages. The King with consummate energy and skill averted the storm from himself, after a tremendous and dramatic scene of personal humiliation and penance.

In the result, the King gained most of his points; and his successors on the throne of England established a more or less national and mediatised church, even before the Reformation. Becket secured the enthusiastic devotion of the people; his great defiance indirectly advanced the cause of Catholic independence over Europe;

and his martyrdom became one of the landmarks of the Middle Ages. Three years after the murder, he was canonised by Alexander III., and became at once the most popular of English saints : his tomb in Canterbury cathedral was one of the most famous pilgrimages in Europe, and his name in England is still one of the most common of all Christian names. [F. H.]

Dr. Giles : *Seven Contemporary Lives of Becket.* H. H. Milman : *Latin Christianity*, bk. viii. ch. viii. J. R. Green : *Short History of England.* Mrs. J. R. Green : *Henry II.* E. A. Freeman : *Historical Essays*, 1st series, iv.

ST. FRANCIS OF ASSISI, b. 1182, d. 1226.

It was during the crisis of Catholicism, in the first generation of the 13th century, in the papacy of Innocent III., that there arose in different countries at the same time two extraordinary men, who set themselves to combat the two great dangers of the Church. The scandalous luxury, worldliness, and sensuality of the age, both clerical and lay, revolted the pure soul of ST. FRANCIS of Assisi in Umbria. St. Dominic, a Castilian, a few years his senior, set himself to combat the scepticism, the heresy, the ignorance of his time. Both appealed to the people directly ; both cast off every vestige of wealth, luxury, and pride ; both worked by passionate enthusiasm as their instrument ; and both exhibited consummate genius in the organisation of social institutions. St. Francis, the younger of the two, but the first to act, endowed with a fervour of mystic devotion, appealed to the heart. St. Dominic, the more powerful mind, addressed the intellect. Between them, they revived the spirit of Catholicism, and recast the religious tone of their age.

The father of the famous saint, Pietro Bernardone, of Assisi, in Umbria, was a rich merchant, who, from his trade connection with France, called his son by the then unusual name of Francis. At first the youth was gay, splendid, sociable, and adventurous. But imprisonment, disease, and the imminent hand of death forced on him religious musings and a profound desire to put on a new life. He cast off all that he possessed or could hope for, broke from his family, and at the age of 25 (1206) vowed himself to poverty and to religion. He collected a body of ecstatic devotees dedicated to strict mendicancy, assumed a garb of coarse grey, and, bound by a cord for girdle and with bare feet, set forth to preach poverty, humility, and charity. In 1212, Innocent III., warned by a vision, established the new Order, which was called the *Frati Minori*, or Humble Brothers, with a rule of absolute poverty, austere self-denial, and a life of devotion to the Cross and to Love. The passionate fervour, mystic tenderness, and martyr-like self-abandonment of the new Order spread with irresistible contagion over Europe. The followers were divided into various grades of both sexes :

whole cities enrolled themselves: they started on missions into Asia and Africa to convert the Moslems: within seven years they could convene a chapter of 5000 brethren.

St. Francis is the Saint of the People: the mystical apostle of the Gospel of Love, of Suffering, and of Self-humiliation. On Mount Alverno he received the *Stigmata*, or marks of the Passion, on hands, feet, and side. As there is strong historical evidence for the fact that St. Francis actually bore those wounds in life, it is probable that they were self-inflicted in an ecstasy of religious delirium. After a short but intense career of passionate preaching and mystical self-torment, in which fanaticism disappears in a halo of sweetness and simplicity, St. Francis died at Assisi, in 1226, at the age of 44. For a brief season the exquisite pathos of his life and nature, and the beauty of the religious virtues which he taught, created a real revival of purity and zeal in the lowest depths of the Catholic world. Christendom was filled with the Greyfriars, and the Mendicant Order branched out into various rules, embraced in its ranks many saints, martyrs, sovereigns, and illustrious men and women, and filled for some centuries the poetry and art of the Middle Ages. Dante in his *Paradiso*, canto xi., puts into the mouth of St. Thomas Aquinas, a Dominican, a noble eulogy of St. Francis. "They made love and wonder and sweet looks to be the occasion of holy thoughts." The Divine Foresight, the poet tells us, ordained for the Church two princes to be her guides, one on each side. The one (St. Francis) was all seraphic in ardour: the other (St. Dominic) was for wisdom upon earth a splendour of cherubic light.

[F. H.]

P. Sabatier: *Life of St. Francis* (Eng. trans.) Eng. trans. of several early lives and a selection of Franciscan Legends in Everyman's Lib. Fleury: *Eccles. Hist.* bks. lxxvi.-lxxix; and see 8th Discourse. H. H. Milman: *Latin Christianity*, bk. ix. ch. x. Mrs. Jameson: *Legends of the Monastic Orders*. Sir J. Stephen: *Ecclesiastical Biographies*. Dante: *Paradiso*, canto xi. St. Francis is buried at Assisi.

ST. DOMINIC, b. 1170, d. 1221.

ST. DOMINIC, the great rival and ally of St. Francis, who did for the popular belief of the 13th century what St. Francis did for its popular zeal, was of noble Spanish origin, and was born, 1170, at Calaroga, in Castile. His father was Felix de Guzman, his mother Joanna d'Aza, and his birth and early life have been enveloped in miraculous legend. He studied theology at Palencia, and early assumed the habit of an Augustinian canon; and became attached to the person of the Bishop of Osma. At the age of 32, he made a journey into Languedoc, where he was deeply stirred by the progress of the Albigensian heresies. He decided to devote his life to preaching. "Zeal," he said, "must be met by zeal, humility, by humility, false sanctity by real sanctity; preaching falsehood by

preaching truth." Though he took no part in the crusade against the Albigenses, he is said to have stimulated the zeal of the orthodox. The Inquisition may have been founded through his teaching; but there is no historical evidence that he personally directed it.

About 1212 Dominic received from Innocent III. at Rome permission to enrol the Friar Preachers, who in the garb of Penitents, went about preaching the orthodox faith. The Order of St. Dominic, which rose out of the Preachers, was formally confirmed by Honorius III. in 1216. In the following year Dominic quitted Languedoc, settled in Rome, and devoted himself with passionate zeal to preaching, and to founding a preaching order coextensive with Christendom. Within a few years Dominican convents rose in every Catholic land. Their founder, worn out by incessant labour, was seized with fever and died at Bologna, 1221, in his 52nd year, where he was buried in the magnificent shrine still extant there. He was canonised in 1233. His Order revived the faith of his age, and produced those pillars of the Catholic philosophy, Albert the Great and Thomas Aquinas. They are especially the apostles of sacred art; and the black and white robes of the Blackfriars are prominent in some of the noblest works of mediæval art. St. Dominic took the Virgin as his special patroness; and the growth of the Order did much to convert Catholicism in the Middle Ages into a worship of the Virgin.

The popular belief that St. Dominic was the founder and promoter of the Inquisition is perhaps based on the inevitable tendency of passionate zeal for an absolute creed to degenerate into persecution. St Dominic himself did all that a profound belief in the social need for a systematic faith could do in such an age. Dante has put into the mouth of St. Bonaventura, a Franciscan, a magnificent eulogy of Dominic (*Paradiso*, canto xii.). He calls him—"*Il santo atleta, Benigno ai suoi, ed ai nemici crudo*"—"the holy wrestler (for the truth), sweet to his own, but stern to his foes."

[F. H.]

Fleury: *Eccl. Hist.* lxxvi.-lxxviii. Milman: *Latin Christianity*, bk. ix. ch. ix. Mrs. Jameson: *Legends of the Monastic Orders*. Dante: *Paradiso*, canto xii.

INNOCENT III. (*Lothair dei Conti*), b. 1161, d. 1216.

The week of Innocent III. represents the influence of the Church, at its best and highest point, over the social and political system of the Middle Ages. It records not so much the organisation of Catholicism—that is represented especially in the weeks of Hildebrand and Bossuet in the preceding month of *Catholicism*—as the influence of the organised church on the political and social system known as *Feudalism*. The week opens with St. Leo in the 5th century, who first made this influence a reality, and closes with Innocent III., under whom the Papacy rose to its greatest height

of real power and of moral authority, and with whom that power began to wane. Of this brief, incomplete, and exceedingly checkered career, Innocent III. represents the most characteristic phase.

INNOCENT was an Italian of the noble family of the Conti, by his mother's side, of the senatorial house of Scotti. His relations were cardinals and ecclesiastics of rank; Pope Clement III. was his uncle. Born in 1161, he was educated at Pavia, and at Bologna, and, having the highest character for learning and morality, he was created Cardinal at the age of 28, and at once became one of the most faithful and trusted counsellors of the See. In 1198, at the age of 37, Lothair, Cardinal Conti, was unanimously chosen Pope; and, in token of his pure character was hailed as Innocent III. From the day of his election to the day of his death, during 18 years, Innocent asserted the highest claims of his office. In his inauguration sermon he broke forth:—"Ye see what manner of servant that is whom the Lord hath set over his people; no other than the vicegerent of Christ; the successor of Peter. He stands in the midst between God and man; below God, above man; less than God, more than man. He judges all, is judged by none, for it is written—'I will judge.'" And in his Decretals (ann. 1200), he says:—"Our power is not from man but from God; for no rational being can dispute that it is part of our holy office to correct all Christian men whatever for any kind of mortal sin, and if he should make light of our correction to coerce him by the pains and penalties of the Church."

In this spirit, with wonderful courage, pertinacity, and, it must be said, singleness of aim, Innocent sought for 18 years to control the Christian world. The first care of the new Pope was to re-establish the power of the See in Rome and Italy. All considerations were put aside for the sake of freeing the Papacy from any dangerous rival. The Empire was now vacant by the death of Henry VI., and for ten years—1198-1208—a long and bloody struggle ensued between the rival Emperors, Philip and Otho. Innocent claimed the right of ultimately deciding on the election of the Emperor. He decided for Otho; and much of the disorder and bloodshed of the war was due to the obstinacy of the Pope. The governing principle of the Pope's action was to obtain an Emperor who could only exist by Papal support. Passing from one claimant to another, Innocent at length (1217) accepted as Emperor, Frederick II., who proved to be ultimately the most obstinate enemy of the See.

Philip Augustus, King of France, having repudiated his wife Ingeburga (1194), married Agnes of Meran. One of the first of Innocent's acts as Pope was to insist on the restoration of Ingeburga. He sent a Legate to France, and laid the kingdom under an interdict; and, after a bitter struggle that convulsed the kingdom for three years, Philip took back Ingeburga. A similar struggle took place with England. Beginning with supporting John, Innocent

engaged in a fierce conflict with him about the appointment to the See of Canterbury. He annulled the king's nomination, and chose Stephen Langton, an eminent English Cardinal. An interdict laid on the kingdom, and enforced with rigour, drove John to submission, and after a struggle of eight years the King of England consented to proclaim himself the vassal of the Pope. Although the Pope henceforward supported John, his action as a whole, and especially his choice of Stephen Langton as Archbishop, greatly contributed to the concession of the Great Charter (1215).

Thus three great kingdoms—Germany, France, and England—had been under Papal interdict, and the ascendancy of Innocent over their kings had been effected by excommunication. And the same authority was exerted, by the same means, over nearly all the smaller kingdoms of Europe between the Baltic and the Atlantic.

But no care seemed to Innocent more urgent than the revival of the Crusade for the Holy Land, in spite of the accumulated disasters, crimes, and vices, which for more than a century had marked these wars. Innocent addressed letter after letter to king, prince, and prelate. All Christendom was taxed for the new war. It resulted in the disgraceful Fourth Crusade, the only result of which was the capture of Constantinople and the establishment of the Latin kingdom of the East (1203). But the most signal example of Innocent's zeal was the terrible crusade against the Albigenses, the reformers of the South of France. The result was a frightful religious war, carried on with unrelenting cruelty for eight years by Simon de Montfort. It was evident that the Catholic world was in imminent danger of disruption through the premature and fanatical reformers of Languedoc, the practical effect of their heresy amounting to the repudiation of Church or priest altogether. The crusade waged by Innocent arrested the schism. But the horrors of this ferocious war, and the inhuman spirit of persecution which it aroused, leave a profound stigma on the memory of the age and of its spiritual chief. More really important, and far more spiritual, was the establishment of the two great militant Orders, that of the Dominicans and Franciscans, both of which belong to the age of Innocent. Long doubtful, and even opposed to them, the Pope eventually accepted both. Innocent died in 1216, at the age of 55—the type of all that was noblest, strongest, and most arbitrary in the absolute creed of Catholicism. The impressive story of his rule is a record of a grand purpose, which contained within itself the germ of corruption, and which even in the purest hands had become a splendid failure. [F. H.]

Fleury: *Eccles. Hist.* bk. lxxv.-lxxvii.; and 4th Discourse. H. H. Milman: *Latin Christianity*, bk. ix. J. de Maistre: *Du Pape.* Hallam: *Middle Ages*, ch. iii. and vii. F. Gregorovius: *Hist. of the City of Rome in the Mid. Ages* (Eng. trans.) bk. ix. ch. 1-3. Innocent was buried in the Cathedral at Perugia, but his remains are now in St. John Lateran.

SAINT CLOTILDA, b. 475, d. 545.

The week dedicated to the rulers who directly carried the spirit of Catholicism into their respective governments, opens naturally with the Queen, in the 5th century, who converted the Frank kingdom to orthodox Christianity. She was the daughter of Chilperic, a petty King of Burgundy, and was brought up at the court of her uncle Gondebaud. Clovis, the young king of the Franks, asked and obtained her hand (493), and was persuaded to allow their children to be baptized. For some years Clovis resisted all her importunities to accept Christianity himself, telling her that her Christ was neither a powerful warrior nor of royal birth. But in 496, at a battle with the Alemanni, he made a vow to the God of Clotilda in the stress of action ; and on gaining the victory he and his warriors were baptized at Reims by St. Remi.

Clovis died in 511, and the latter life of his queen was darkened by the savage contests of her three sons for the throne of their father. She survived her husband 34 years, living chiefly at Tours in the practice of good works, supporting her afflictions with unshaken fortitude and Christian resignation. She founded and endowed many abbeys, churches, and religious houses, the most important of all being the Church of Sainte Geneviève at Paris, which she induced Clovis to found. It is now called the Pantheon : and is become a secular monument—after so singular a history over 14 centuries. She herself, together with Clovis, and many of their descendants, were buried there, and her tomb was a place of pilgrimage down to the Revolution. She was canonised shortly after death. St. Clotilda has always been the special representative of the Catholicism of the rulers of France, and is in a peculiar sense the royal saint of Paris. Her place in the Calendar is obviously due to the cardinal importance to the course of European history of the conversion of the Frankish kingdom to Christianity. This was in fact the starting-point of the Catholic Feudalism of the Middle Ages, and ultimately of the Empire as its basis and symbol. It was the conversion of Clovis, under the influence of his saintly wife, which effectually aided in establishing the kingdom of the Franks, through the welcome everywhere extended to him by the Church. And thus the foundation of the Frank monarchy is here represented by Clotilda, and not by Clovis. [F. H.]

Pos. Pol. iii. 394. H. H. Milman : *Latin Christianity*, bk. iii. ch. ii. B. L. H. Martin : *Histoire de France*, vol. i. T. Hodgkin : *Italy and her Invaders*, bk. iii.

ST. BATHILDA, d. 680.

BATHILDA, of Anglo-Saxon birth, was early made a slave and carried off by a Danish Chief, then purchased by the Mayor of the Palace, who, struck by her surpassing beauty, presented her to

Clovis II., King of the Franks, and son of Dagobert. Clovis made her his wife. On his death (656), leaving by his wife Bathildis three infant sons, she was appointed regent in the name of her son Clotaire III. She at once established her authority and ruled with wisdom and justice. "Queen Bathildis was the holiest and most devout of women; her pious munificence knew no bounds; remembering her own bondage, she set apart vast sums for the redemption of captives" (Milman). Her beneficence is recorded in all the great abbeys of those times. For some years Bathildis governed well with the aid of Ebroin, Mayor of the Palace, and Leodegar (St. Leger), Bishop of Autun. The rivalries between these two and their factions, and the seditions which followed the death of Clotaire (670), compelled Bathildis to withdraw from the strife. She retired to the great convent of Challes, near Paris, which she had rebuilt, and which remained a royal abbey until the Revolution. There she died (680), and there her remains are said to lie.

The glory of St. Bathilda is, that on the throne she never forgot her condition of slavery, and in the convent she never remembered that she had been a queen. She used all her efforts as ruler to suppress slavery and to mitigate the lot of the serf. She was singularly beautiful; and her mind and character corresponded to the grace of her person. Her career belongs to the epoch when personal slavery was being rapidly extinguished in the West under the combined influence of Teutonic manners, the growing authority of women, and the teaching of the Church. St. Bathilda, combining all these influences in herself, is one of the noblest types of the spiritual power which ultimately extinguished slavery. [F. H.]

H. H. Milman: *Latin Christianity*, bk. iv. ch. x. B. L. H. Martin: *Histoire de France*, vol. ii.

ST. MATILDA (*Countess of Tuscany*), b. 1046, d. 1115.

MATILDA, known as the "Great Countess," was the daughter of Boniface II., Duke of Tuscany, and of Beatrice of Lorraine, and was born in 1046. By the assassination of her father, and the death of his other children, she became in early childhood sole heiress to the enormous possessions of the Dukes of Tuscany, the virtual sovereigns of Italy, and was thus the greatest matrimonial prize in Europe. Godfrey of Lorraine married her mother Beatrice, and betrothed Matilda, then aged 8, to Godfrey, the son, called the Hunchback. This marriage was treated by Matilda as a nullity, nor did they live together as husband and wife. On the death of Godfrey the father, Matilda and her mother Beatrice became the ardent protectors of the Roman See, and the formidable rivals of the Empire. Hildebrand became Pope in 1074, and for ten years carried on his desperate struggle with Henry IV. Throughout this long duel between the temporal and the spiritual powers, Matilda, as through life, stood forward as the armed supporter of the Papacy.

At the age of 30, she lost her mother and her nominal husband, and thenceforth she ruled her vast dominions alone, and placed her formidable military resources at the service of the Pope. In 1077 she gave an asylum to Hildebrand in her impregnable fortress of Canossa, and there he forced the Emperor to sue for pardon as a penitent. A few years later, Henry recovered his strength, drove the Pope from Rome, and Matilda into her mountain strongholds. Continuing, after the death of Gregory, in her hostility to the Emperor on behalf of the Holy See, Matilda, at the age of 43, on the advice of the Pope, married Guelf, son of the Duke of Bavaria, the rival of the Emperor (1089); but the marriage was soon repudiated by her husband, who separated from her, and joined the cause of the Emperor. For 25 years yet, Matilda alone continued to hold her own against the utmost resources of the Empire, and established herself as virtual sovereign of Central Italy. She maintained the independence of the Popes during the long reign of Henry IV.; and on the accession of his son, Henry V., in 1106, Matilda, now a woman of 60, continued to confront him with policy, if not with arms. The young Emperor treated her with filial deference, and confirmed her authority in Northern Italy. She still ruled with undiminished energy until the age of 69, when she died, worn out by disease and the incessant strain of war and diplomacy, in 1115.

In 1102 she confirmed, at the desire of Pope Pascal II., her gift of all her estates of every kind to the Papal See. The deed (which in its extant form is doubtful) conveys her fiefs and allodial possessions, in free and immediate gift, including Tuscany, the central Italian duchies, Umbria, and the "States of the Church." Controversy has raged from that time to this as to the exact form of this gift, as to its date and circumstances, as to its legal validity, and as to its practical effect. As a full transfer of the whole of her hereditary possessions, amounting to a quarter of all Italy, such a gift could give no title in law, and it certainly did not take actual effect. On the other hand, it certainly formed the basis of the temporal power of the Popes as it existed down to our own day. The independence of the Head of Christendom from temporal rulers is a question too large to be here debated. To secure it in some form was a condition of the formation of a real spiritual power. And of all the temporal sovereigns by whom it was secured, Matilda was amongst the chief. She is the Queen Elizabeth of Catholicism, with the same courage and subtlety, the same skill in ruling a kingdom, and the same determination to gain her end at all costs. She was a woman of varied ability, speaking equally German, French, and Italian, an earnest promoter of learning, of law, and theology, an intense and faithful believer, and a staunch supporter of her friends. [F. H.]

N. Duff: *Matilda of Tuscany* (1909). Fleury: *Eccles. Hist.* bk. lxii., lxiii. lxv. H. H. Milman: *Latin Christianity*, bk. vi. ch. ii.-v., bk., viii. ch. ii. J. de Maistre: *Du Pape*. In the seventeenth century Matilda's body was removed to St. Peter's at Rome.

ST. STEPHEN OF HUNGARY, b. abt. 977, d. 1038.

ST. STEPHEN, the founder of the kingdom of Hungary and of its Christian civilisation, was born at Gran, the ancient capital. His father was Geyza, Duke of Hungary; his mother was Sarolta, daughter of the Duke of Transylvania, who, during a mission to Constantinople, had embraced Christianity. The young Prince himself received adult baptism from St. Adalbert, the missionary Bishop of Prague, and changed his native name of Vayik for that of Stephen. In 997 Stephen succeeded his father as Duke; and at once, inspired by the faith of his wife Gisella, a sister of the Emperor Henry II., by her Bavarian attendants and the monks and missionaries already established in the country, he set about the task of completing the conversion of Hungary from Paganism to Christianity. This he effected by example, exhortation, policy, and the sword. He divided the country into church dioceses and districts, placing the metropolitan seat at Gran; and he covered it with castles and strong places to defend at once his own authority and the new Church.

Stephen decided to seek for both a special consecration from the Head of Western Christendom. In the year 1000 he despatched to Pope Sylvester II. (Gerbert) at Rome a magnificent embassy, asking the crown for Hungary and the confirmation of his new hierarchy. Sylvester was delighted by such devotion: granted to Stephen and his successors the title of the "Apostolic King," the right to bear in public the double cross as a sign of independent ecclesiastical authority; and he sent the famous crown venerated through the ages as the sacred symbol of Hungarian sovereignty. This ancient tie between the Magyar ruler and the Papacy subsists throughout Hungarian history. Hungary, placed between the anti-Papal Empire in Germany and the non-Catholic races on its east, seized on the moral support which Rome could give it; whilst the prophetic soul of Sylvester saw with visions of hope the free devotion of the Apostolic Kingdom to the Holy See. Armed with its authority, Stephen turned his arms eastwards, drove out his uncle, Duke of Transylvania, who had raised the standard of the old faith, and effectively established his power over the kingdom of Hungary as known in mediæval history.

Then for 20 years Stephen had rest, and devoted his energies to the organising of his country into a Christian kingdom. "The Christian Church was the corner-stone of all social and political order in the days of Stephen," says the Hungarian historian of his country. And then he ordered the system of the national church with a completeness, a munificence, and a skill which were not surpassed in mediæval Europe. At the same time he settled the political and social order of the kingdom in the spirit in which William of Normandy a generation later settled England, and with

care not to dismember the royal authority, as was done by the feudatory system in Germany and in France. The death of Stephen's brother-in-law, the Emperor Henry II., exposed Hungary to attack from Conrad II., his successor in the Empire, 1030. But the heroic resistance of the King and his people drove back the Emperor, and compelled him to acknowledge their independence. Stephen's last years were overshadowed by the death of his only son, by his own diseases, and domestic dissensions about the succession. He died in 1038, after a reign of 38 years, and was canonised in 1083. His right hand and his crown are still preserved as relics and symbols of Hungarian nationality.

He was truly the Alfred of Hungary, like our great king in courage, energy, zealous religion, and pure morality. His noble words of advice to his son remain; and may be placed beside some of the best thoughts of the Saxon. "The Church," it has been said, "has placed him amongst the saints: history among the legislators." [F. H.]

Mrs. Jameson: *Legends of the Monastic Orders*. H. H. Milman: *Latin Christianity*, vol. ii. bk. vi. Arminius Vambéry: *Hungary*. St. Stephen is buried in Martinsberg Abbey (Gyor) near Raab.

MATTHIAS CORVINUS, b. 1443, d. 1490.

MATTHIAS, the last great king of independent Hungary, was the younger son of the national hero in the long war with the Turks, John Hunyadi. He was born in 1443, and from childhood was trained by his father to arms and command. On the death of the child king, Ladislaus V., and the murder of his own brother Ladislaus by a faction, Matthias was chosen king, at the age of fifteen, 1458. The young King soon proved himself to be one of the most consummate soldiers and most successful sovereigns in Europe. His personal prowess was that of a knight-errant; he would himself enter an enemy's camp alone, as a spy; and he trained the Hungarian army to a perfection which nothing in Europe could surpass. His reign was one of incessant war with the Turks and the Danubian chieftains on his eastern frontier, with the kings of Poland and Bohemia on his north, and with the Emperor on the west. His valour, skill, and discipline brought all his campaigns to a successful issue. He drove the Sultan to sue for peace, overran the kingdoms round Hungary on the north, twice subdued the Emperor, and finally took Vienna, conquering the Austrian States (1486), which he held till his death.

He established a guard of picked troops on the model of the Turkish Janissaries, and was the first sovereign of Europe to imitate the practice of Louis XI. of France, by creating a regular standing army. He was a stern and indefatigable disciplinarian, and one of the creators of modern systematic strategy. Nor was he less

active and successful in the arts of peace. He increased the wealth and resources of Hungary, with which he eclipsed his contemporaries in splendour of state and in literary and artistic culture. His embassies thronged and dazzled the courts of Europe ; he married Beatrice, daughter of Ferdinand, King of Naples, and established intimate relations between Hungary and Italy. He invited learned men, artists, and copyists to his court ; established at Buda one of the most famous libraries of the Renascence, numbering 30,000 volumes. After the fatal day of Mohacz (1541) and the sack of Buda, the library was dispersed, and in the nineteenth century portions of it were discovered in the old Seraglio at Constantinople. He established the University of Buda and an observatory, and introduced into Hungary the use of printed books. He also published a code of laws known as the Great Charter. After a reign of 32 years, Matthias died suddenly at Vienna in 1490, aged 47, the ideal of the feudal chief of a warlike and romantic age. He left no heir, and, after 500 years from Stephen, Hungary passes out of history as a great and independent kingdom.

The feudal civilisation of Europe had practically come to an end nearly two centuries before. Such men as Villiers, Don John, Albuquerque, Raleigh, Matthias, and Sobieski represent those who in later ages prolonged the spirit of chivalry in defending Christendom from the Moslem, or in bringing outlying and backward races within the influence of Western civilisation. [F. H.]

Arminius Vambéry : *Hungary*. Matthias is buried in Martinsberg Abbey.

ST. ELIZABETH OF HUNGARY, b. 1207, d. 1231.

ST. ELIZABETH, in the Catholic hagiology the type of womanly charity, represents in the month of Charlemagne, the power of women to ennoble the feudal chivalry. Although legend has surrounded her life with miracle, the essential facts are historical, and her real character and work are beyond doubt.

She was the daughter of Andrew II., King of Hungary, was born in 1207, at the age of four was betrothed to Louis, son of the Landgrave of Thuringia. She was brought up in the court of her future husband ; and the *Lives of the Saints*, are full of beautiful stories of her infantine graces and girlish sanctity. At the age of fifteen she was married to Louis, now of age and reigning Duke ; and completed the ascendancy over him which she had exercised from their childhood. He was in every way worthy of her : his chosen motto was : "*Pie, caste, juste.*"

Their short married life of six years is represented as the type of conjugal purity, unbounded charity, tender watchfulness for the welfare of their people, and the spiritual ascendancy of a saintly woman. The legends of her graces and virtues, of her beauty,

sweetness, piety, benevolence, self-denial, and affection are amongst the most pathetic in the whole Catholic hagiology, mingled as they are with morbid asceticism and mystical extravagance.

When the Pope summoned Frederick II. to a new crusade, Louis followed the Emperor, and died of fever on his road. at Otranto, in 1227. The young widow, just 20, with her four children, was driven from her castle of Wartburg, which three centuries later became the refuge of Luther, wherein he completed his translation of the Bible. Elizabeth declined the regency in the name of her infant son, withdrew to Marburg with her daughters, and devoted herself wholly to a life of penance and charity, under the direction of her confessor Conrad. After a few years of self-imposed sufferings, she died at the age of 24, in 1231, it would seem worn out by her zeal for good works and the cruel orders of her spiritual tyrant. She died as a hermit, with the Franciscan cord round her ; and her shrine in the St. Elizabeth Church of Marburg was long one of the centres of German pilgrimage, till it was brutally violated by her descendant Philip of Hesse, at the Reformation.

Elizabeth forms one of the most cherished figures in the art, the legend, the poetry of Catholicism. And although much in the Legend of St. Elizabeth is childish, and not a little is repulsive, the substance of it remains as a perpetual type of the power exerted by the nobler women of feudalism in fusing chivalry with the spirit of Christian charity, and in raising the mediæval chief to a sense of social obligation. [F. H.]

Montalembert : *History of St. Elizabeth* (1838), translated by Ambrose Lisle Phillips, 1839. Charles Kingsley : *The Saint's Tragedy*. Mrs. Jameson : *Legends of the Monastic Orders*.

BLANCHE OF CASTILE, b. 1188, d. 1252.

BLANCHE OF CASTILE was the daughter of Alfonso VIII., King of Castile, and the aunt of Ferdinand III., King of Castile and Leon. She was probably born in 1188, and in 1200 was married to Louis, afterwards Louis VIII. of France, in the lifetime of his father Philip Augustus. Louis VIII. succeeded his father in 1223, but died after a short and not important reign in 1226. Then Blanche became Regent in the name of her son Louis IX., a boy of eleven, being herself in her 39th year. For ten years she ruled France with consummate energy, prudence, and success. Her rule is a real continuation of the policy of Philip Augustus, and forms an integral part of the reign of Saint Louis himself. Again, during the absence of the King on his first crusade, Blanche was his Viceroy (1248-1252) ; and it was owing to her genius for command and unflinching energy that the kingdom was spared many of the disasters in which Louis' crusade would have involved it.

Blanche was thus, during fourteen years of critical importance

in the history of the monarchy, the true sovereign of France. "This woman," says the historian Henri Martin, "the greatest who had borne the crown since Brunehilda, was worthy to rule and defend the inheritance of Philip Augustus: she had the same thirst and genius for rule, with a like energy, courage, and perseverance. She had in truth all the manly virtues without sacrificing anything of the grace and address of woman." Blanche, who came of a race of great rulers, and had lived for 26 years in the court of Philip Augustus and of his son, showed every quality of a consummate sovereign. She was untiring, politic, adroit, prudent, and wise. Whilst resolved to maintain the independence and sovereign authority of the monarchy, even against the encroachments of the Church, she was a devout Catholic and a staunch friend of the spiritual authority of the Pope. She retained to old age the proud and refined beauty of Spain, and permitted it to count amongst her powers of influence. The tales which attribute scandal to the poetic gallantry of Thibaud, Count of Champagne, and to her politic friendship with the Papal Legate, are doubtless party calumnies.

She brought up her son in the spirit of exalted piety and of austere morality which he showed through life. She acquired an unbounded influence over the spirit of Saint Louis, and trained him in the wise principles of State which he maintained as King. She saved France from the consequences of a celibate sovereign by marrying Louis at the age of 20 to Margaret of Provence, a wife in all things worthy of him. And almost the only act of Louis in direct conflict with her advice and remonstrance was the disastrous crusade which he undertook in 1248.

On the death of her husband Louis VIII., Blanche had secured the crown of her son, and her own authority as Regent with consummate address. And after ten years of rule not unworthy of Philip Augustus himself, she handed over the sovereignty to Saint Louis in as flourishing a condition as she had herself received it. During the twelve years that intervened before the departure of St. Louis for Egypt, she continued to exercise a dominant influence over her son. And, although her strong and imperious nature pressed hardly on the gentle soul of Louis, and with cruel and perhaps jealous severity on his young and amiable wife, it does not appear that his mother unduly or mischievously interfered in matters of State. Her rule in France, both during the minority and during the absence of the King, was peaceful, wise, and just; and if Blanche had little of the saintly simplicity and the exquisite unselfishness of the most holy of the kings, she trained him in things spiritual as well as things temporal, and she had the sagacity to avoid some of the heroic blunders of her son. [F. H.]

Joinville: *Life of St. Louis*. B. L. H. Martin: *Histoire de France*, vol. iv. H. H. Milman: *Latin Christianity*, bk. xi. ch. i. Blanche was buried in the Abbey of Maubuisson which she had founded.

ST. FERDINAND (*Ferdinand III.*), **b. abt. 1200, d. 1252.**

ST. FERDINAND of Castile was the son of Alfonso IX., King of Leon, and Berengaria, daughter of Alfonso VIII., King of Castile. After a union of several years and the birth of four children, a decree of the Pope separated Berengaria from her husband, whilst declaring the legitimacy of her children. Berengaria retired with her children to her father, the King of Castile. On the death of her brother Henry I., she procured the throne of Castile for her eldest son, Ferdinand (1217). After some years of successful rule, the death of his father, Alfonso, placed Ferdinand on the throne of Leon (1230). Thus he finally reunited the kingdoms of Castile and Leon, which had been separated for more than 70 years; and by reviving the old Gothic monarchy in the heart of the peninsula really founded the kingdom of Spain.

Ferdinand, at once combining the force of the two kingdoms, suppressed the civil war begun by the ambitious house of Lara, and then burst into the Moorish province of Andalusia, and took its magnificent capital, Cordova. In a series of campaigns spread over eighteen years he followed up his victories, and finally (1248) reduced the splendid and populous city of Seville, and brought the teeming valley of the Quadalquivir, it is said, with 12,000 villages and towns, under the sway of Christendom. We are told that more than 400,000 Moors of all ages and both sexes, with countless Jews, were driven over into Africa.

The Moors were thus, by the middle of the 13th century, driven back into the kingdom of Grenada, in the mountains of the Sierra Nevada, where for 250 years they still stood stubbornly at bay. Ferdinand, like his first cousin, St. Louis of France, devoted his whole life to establish the Christian faith by the sword, and made a vow never to draw it in Christian conflict. This of course is quite consistent with his zeal as a persecutor of all heretics and of the Albigensian refugees in particular. He is represented in Spanish poetry by Calderon in an *Auto-Historial*, and even in pictures, as bringing fagots with his own hand to burn unbelievers. By his wife Beatrice of Swabia, sister of the Emperor Frederick II., he was the father of Alfonso X., King of Castile and Leon.

Like St. Louis, he is famous for his vehement piety, his love for his mother, and his incessant war on the infidel. Ford calls him "the best of kings, the bravest of warriors." He founded the Cathedral of Burgos and began to rebuild that of Toledo. A saying of his is recorded: "I fear the curse of one poor old woman more than a whole army of Moors!" After his conquest of Andalusia he was meditating a crusade, when he was overtaken by dropsy. He died in the garb of a penitent, on a bed of ashes, a cord round his neck, his royal emblems laid aside, and a crucifix in his hand,

May 1252. He was canonised in 1668; and is revered in Spain as their Saint Louis, the founder of the Christian monarchy of Spain. [F. H.]

Ascargorta: *History of Spain*, ch. v. U. R. Burke: *A Hist. of Spain*. Hallam: *Middle Ages*, ch. iv. Mrs. Jameson: *Legends of the Monastic Orders*. He is buried in Seville Cathedral.

ALFONSO X., b. 1226, d. 1284.

Alfonso, commonly called the Wise, was the eldest son of Ferdinand III., whom he succeeded as ALFONSO X., King of Castile and Leon, in 1252. He continued the victorious career of his father against the Moors of Grenada, and crushed the insurrection of his own vassal barons. He received with much warmth our Prince Edward, afterwards known as King Edward I., made him knight, and gave him in marriage his daughter, Eleanor. In 1266 he crowned his victories over the Moors of Grenada by a very favourable alliance with the Emir. Through his father Ferdinand, Alfonso was in the direct line of descent from Charles the Great, and through his mother from Frederick Barbarossa and the Swabian Emperors. This filled him with the foolish ambition of being chosen to succeed to the Imperial throne, and for many years his life was absorbed in efforts to secure his election. With the election of Rudolph of Hapsburg, in 1273, his claims were effectually crushed.

His latter years were clouded by domestic insurrections, and a league of rebel vassals, headed by his own son Sancho. He died in 1282, aged 58. The importance of Alfonso in the 13th century lies entirely in his zeal for science and literature, by which he has gained the name of *Sabio*, which should be translated the *Learned* rather than the *Wise*, for in practical wisdom Alfonso did not shine. He acquired his love of learning from the Arabs, with whom he held much intercourse, and eventually made peace on friendly terms. He did not share the fanatical zeal of his father; but was wise enough to recognise the value of the superior knowledge of the infidel. As was his famous uncle, Frederick II., whom he so much resembles in his character as in his life, Alfonso was charged with laxity of faith, indulgence for the unbeliever, and a tendency towards the black art. It is of him that the famous saying is recorded: "Had he been consulted at the Creation, he could have suggested some improvements."

He founded the famous University of Salamanca, established the national language, began the national history, and the fundamental code of laws for the kingdom. His great gift to science was the *Alfonsine Tables*, a series of astronomical calculations, the work of Arabian astronomers whom he invited to his court, which were in use in Europe down to the 16th century. His famous Code of the *Siete Partidas*, or seven chapters, was a codification of the old Spanish *Fueros*, or customary law, mingled with passages

from the *Corpus Juris*. He commenced the Chronicle of Spain—a national history from the earliest times down to that of his father Ferdinand III. This was a compilation, in fact, from Arabian historians, and in a large measure was the work of Alfonso himself. He also wrote a *Sacred History*, a history of Jerusalem. And he was a poet not without merit. We still have his lyrical outpouring of heart over the rebellion of his son Sancho. He was also addicted to alchemy, in which art he advanced far enough to be a systematic debaser of the royal mint.

He owes his place in the week of St. Louis, like Matthias Corvinus, to his success in promoting the intellectual rather than the political civilisation of his country. He has many of the qualities of his uncle Frederick II., and some of those of his son-in-law, Edward I. of England. Allowing for the differences between the 9th and the 13th centuries, Ferdinand III. and his son, Alfonso, between them, supply for Spain that which England found in her great King Alfred.

[F. H.]

Ascargorta: *History of Spain*, ch. v. U.R. Burke: *A Hist. of Spain*. Hallam: *Middle Ages*, ch. iv. Alphonso is buried in Seville Cathedral.

ST. LOUIS, b. 1215, d. 1270.

The week of St. Louis is devoted to those rulers of the mediæval monarchies who endeavoured to make their reign realise the Catholic ideal of the Christian king. Of these, Louis IX., King of France, is the true hero. All of those in the week were princes; seven of them are saints; five of them are women; and St. Louis himself had many of the best qualities of women. It is significant that in the month devoted to Feudal Civilisation, there is hardly a single type of the subordinate feudal chief except the Cid, Tancred, and Godfrey. All the rest are sovereigns, churchmen, or women. St. Louis is the best representative of the 13th century, with all its heroism, its devotion, its faith, and its passionate and childlike extravagance.

ST. LOUIS was born in 1215, the son of Louis VIII., King of France, and Blanche of Castile. Philip Augustus, his grandfather, died in 1223, and Louis VIII. three years afterwards; and, in 1226, Louis IX. found himself King of France at the age of 11. His mother Blanche, with skill and courage as Regent, secured his throne; and then brought up the child with the sternest discipline of monastic piety. St. Louis was a monk on the throne. His austere asceticism outdid that of the cloister: his fasting, his continence, his penances, his devotions, and minute observance of all ritual duties were the wonder and admiration of his age. But his character had far higher virtues. He had none of the harshness of the ecclesiastic; he had all the courtesy of the most graceful knight. He had all the brightness of a French prince with a peculiar gentleness and

sweetness of nature that were all his own. His sincerity, earnestness, patience, industry, humanity, and humble heroism make him the ideal of the Christian soldier and the Catholic king. He would wash the feet of beggars, invite the poor to his own table, tend the sick in the hospitals, he would even kiss a leper in the highway. He devoted himself to the writings of the Fathers. He was strictly conscientious in resisting all temptations to aggression, injustice, rapacity, or self-aggrandisement. He was legislator as well as ruler ; and, Catholic saint as he was, he was the founder of the temporal independence of the Gallican Church, and never sank the king in the devotee except in his two disastrous and useless crusades.

At the age of 20, Louis was married to Margaret, one of the four daughters of the Count of Provence, a wife whose faithfulness, tenderness, and nobility of nature were worthy of such a husband. At the age of 21, Louis entered on the conduct of affairs, still relying on the experience and wisdom of his mother (1236). As king, Louis carried on the policy of Philip Augustus in augmenting the power of the crown ; but no ambition, intrigue, or injustice can be laid to his charge. He bore himself as a loyal and peaceful neutral in the struggles between the Empire and the Papacy, refused all tempting offers of aggrandisement, the throne of the Two Sicilies for his son and the imperial crown for his brother ; and he directed his whole efforts to prepare his own country for that which was the dream of his life, the rescue from the infidel of the Holy Land.

In spite of the reluctance of many of his barons, the entreaties of his mother, and the counter policy of Innocent IV., Louis set forth to Egypt to conquer a base of operations for the recovery of the Holy Land (1248). His disasters, his defeats, his captivity, his martyr-like heroism, and his chivalrous bearing have been recounted in one of the most precious volumes of the Middle Ages, the fascinating narrative of Joinville, his friend and comrade, one of the founders of French prose style. After four years of suffering and disappointment, unbroken by gleams of anything bright but his own knightly and saintly nature, Louis returned to his throne in 1252. There for 18 years he ruled France with wisdom, firmness, patience, justice, and mercy. Then he undertook his second crusade to Tunis, an expedition still more ill-judged, useless, and chimerical than his former descent on Egypt. Disease, even more than the arms of the Moors, swept away the host. After seeing his son John and his principal followers die of the plague, Louis himself was seized with mortal sickness. He called his son Philip, his heir, to his side, gave him a noble sermon on his duty to God and to his people ; then received the sacrament, and, lying on a bed of ashes, gave up his life, 1270, having lived 55 years and having reigned 44.

Except in his disastrous crusades (and these were rather the Quixotic adventures of the knight-errant than the religious extravagances of the saint) St. Louis by no means forfeited the character

of a real and wise ruler. He is one of the few Christian kings who recognised that his religion implied a practical policy of peace. Peace throughout the Christian world was the ideal at which he ever laboured; and peace within the king's dominion was to him the first duty of a sovereign. He rigorously suppressed private wars between vassals, and judicial duels in all their forms. He was a stern judge of feudal oppression and military licence. By his *Pragmatic Sanction*, 1269, he restrained the exactions of the Papal emissaries and claimed for his own ecclesiastics the free use of their admitted functions. He reformed the coinage, reorganised the police, personally assisted at the seat of justice, and began to give some system to the feudal law by the publication of a code of rules known as the *Establishments of Saint Louis*. Rude and ill-arranged as are these provisions, the weak always gain by the publication on authority of a central written code.

Though no men could be more unlike in character, the royalty of St. Louis had many of the civic features which marked that of his grim descendant and great successor, Louis XI. The great blots upon his reign are his two crusades, which, as Joinville saw so clearly, were ruinous to the nation, and his own avowed preference for the monkish cowl in place of the crown. But it is a fine remark of Henri Martin that we cannot separate such a character, and judge him to be a great ruler except when he made himself a Catholic devotee. His nature and his career are a perfect piece; his virtues as a king flow from his piety as a saint. The beautiful address to his successor which Joinville has preserved for us gives the noblest ideal of the Christian king; one worthy of Alfred himself, in which his public duty is the direct expression of personal religion. The Quixotism which so cruelly maimed his life was the necessary result of intense faith in a visionary creed working on a nature of absolute guilelessness and perfect chivalry. And the disasters of his crusades fade out of sight in the glow which his heroic and saintly life shed over his age, his nation, and his dynasty.

Saint Louis was no Edward the Confessor or Henry III., no mere crowned zealot, but a Christian king of the kin of Alfred and Godfrey. His whole epoch is ennobled by the beautiful picture of the devout and knightly prince as painted for us by his friend and counsellor Joinville, Seneschal of Champagne. The Portrait of Louis administering justice under the oak at Vincennes or in his palace on the island of the *cité* at Paris, of his taking the cross, of his acts as commander, of his sweetness, patience, constancy, courage, simplicity, and charity, and lastly of his pathetic death-bed—will long live in the literature of his country. [F. H.]

Joinville: *Life of Saint Louis*. H. L. H. Martin: *Hist. de France*, vol. iv. H. H. Milman: *Latin Christianity*, bk. xi. ch. i. iv. Louis was buried in Notre-Dame at Paris, but his body was afterwards translated to St. Denis. There is a tradition that his heart was placed in the Sainte-Chapelle at Paris.

MODERN POETRY.

THE immense variety of Modern Life and the development of new forms of imaginative art under industrial manners, naturally conduce to a great extension of the field of poetry, when recent centuries are compared with antiquity. And in consequence two months—one devoted to Modern Epic and Romantic Poetry, the other to the Modern Drama—are needed for the same field which the 34 poets of the month of Homer occupy in the ancient world. Of modern poets, 49 are included in the month of Dante, and 44 in that of Shakespeare. The Calendar thus contains no less than 127 names in the field of creative art, or not much less than one quarter of the whole. Such is the large part which Comte assigned to the imagination in the evolution of human society.

Under the general title of *Poetry* are included all forms of creative art: whether Epic, Lyric, or Romantic poetry proper; prose romances, idylls, allegories, chronicles, or meditations; even painting and sculpture:—indeed every work of imagination in any medium. This is not at all intended to disguise the essential difference between Poetry proper and Prose, even when prose is made a vehicle for pure fancy, as it is in *Don Quixote* or *Pilgrim's Progress*. Poetry and prose remain distinct forms of art, almost as completely as painting and sculpture. But there is no common term which will cover the products of all types of imaginative art. And thus, for want of a better word, Poetry, or the Work of the *Makers*, has to serve as the name for all modes in which the creative faculty of Man expresses imaginative thought.

In some respects the ancient world was more favourable to the production of the highest poetry than the modern world. Society was, and was universally felt to be, both more homogeneous and harmonious in its constitution, and also more stable and regular in its movement. The infinite variety of social activity in the last five centuries of Europe, and the incessant conflicts and permutations in social life, if they stimulate mental originality, are not favourable to perfect art. Again, in the ancient world, the poets were the recognised exponents of the spiritual and religious ideas of their age; there was no deep-seated revolt against these ideas; and no organised Church between the poets and their audience. They had no orthodoxy to which men were bound to conform: and no priesthood by whom their works must be judged.

Thus it comes about that Modern Poetry, even from its birth with Dante, has had, almost in spite of its own instincts, a Revolutionary and critical element, which inevitably weakens it in its grandest flights; nay, which sometimes is the direct inspiration of its work. And from the same special situation have arisen the multiplicity, the audacity, the intense vitality and versatility of the creative genius in modern ages. With Dante, it calls to judgment Popes, Emperors, and States: with Rabelais, Cervantes, and Swift, it paints in profound caricature human society as known to its contemporaries: with Scott, it glorifies the Past at the expense of the Present: with Byron and Shelley, it honours the Future at the expense of Past and Present alike: nay, it actually idealises Revolt and Anarchy as higher manifestations of human freedom.

All this is unfavourable to pure Art, though it stimulates new modes of creation and has won splendid triumphs for independent genius. That Poetry, under conditions so difficult to Art, has produced such a glorious roll of varied works, and has idealised every mode and corner of modern life—is indeed one of the clearest marks of the innate powers of Man. We see, then, in Modern Poetry, with all its inevitable failures, the sure promise of an even more glorious epoch of genius, under a system of society favourable at once to freedom, to peace, to harmony, and to beauty. The creations of Dante and his fellow-poets were produced for the most part in a world where none of these were abiding spirits.

The weeks of this Eighth Month are arranged in the Calendar without reference to national peculiarities or contemporary epochs. The names of all European races stand side by side, reaching from the 12th to the 19th century. Only one-third of the 49 names are those of men who have written in verse.

In the first week, under Ariosto, are grouped those who, in prose or verse, have created ideal pictures of human nature in its various aspects, formed the poetry of manners, and have told in its infinite moods the legend of modern society. The great masters of *character*, whose subject is Man, whose vehicle is not the drama, come in this group.

The second week, under Raphael, is given to the great workers in the arts of form—painters, sculptors, architects—chiefly to the painters as dealing with the most elementary and widely diffused of all the visual arts. Herein are commemorated not so much the most eminent of artists as the chief representatives of the art of various nations, schools, and modes of working. Modern aestheticism would frame a somewhat different roll, and may regret the absence of Giotto, Mantegna, Dürer, or Correggio. But the list is not designed to be a classification in order of merit: it is a set of representative and contrasted types.

The third week, under Tasso, is given to the poetry of Chivalry, the idealisation of knightly virtues and the romance of adventure.

The fourth week, under Milton, belongs to the poetry of feeling: to religious poetry in its widest sense, to the lyrics of the heart, to the mystics, the pantheists; the poets of the human soul in all its moods and yearnings from that of À Kempis and Bunyan to that of Byron and Shelley. [F. H.]

DANTE (*Durante Alighieri*), b. 1265, d. 1321.

Of the great poet of Italy, who opened the roll of modern literature, little is known but what we can gather from his own writings. And that little has been reduced by remorseless modern research to a very few definite facts. The latest authorities roundly declare the biography of the poet hitherto current to be mere romance, and bid us trust to none but Villani and contemporary documents. And certainly no one can now attempt to record it without duly weighing all that is elaborately discussed by Scartazzini in his recent volume IV. (*Prolegomeni della Divina Commedia*, Leipzig, 1890). Happily the poet himself, in his numerous works, all so intensely personal and passionate, has given us ample insight into the inner man and the general conditions of his life. At least we may know him if we may not know more. The following facts contain almost all that is beyond suspicion or controversy.

DANTE was born in Florence, in or near to May 1265, of an honourable family of ancient descent, though not on the roll of nobles. He proudly traced his ancestry to Cacciaguida, a knight in the service of the Emperor Conrad, born 1090, who died in arms against the Saracen and passed from that *martyrdom* to Heaven (*Paradiso*, xv. 148). Cacciaguida, by his wife "from the valley of the Po," had a son Aldighiero, whose son was Bellincione, whose son, again, was Alighiero, who was father of the poet, by Bella, his second wife. Of all of these nothing more is known. There is no trace of a family of Alighieri at Florence, and of the rank or condition of its members nothing has been discovered, except that they were certainly Guelfs, and had twice suffered exile.

Of the early education of the poet we know nothing beyond the rhetorical statement of Boccaccio, that he was one of the most accomplished scholars of his age, and the poet's own assertion that his mind had been profoundly impressed by constant intercourse with Brunetto Latini, a man of great learning, and, in spite of his vices, of commanding character and influence in the city. At the

age of 24, Dante, then used to arms, took part in the bloody battle of Campaldino, where the Ghibellines were annihilated. And again in the same year he was present at the capture of Caprona, a fortress held by the Pisans. We know from his own words that he early wrote poetry, read *Boëthius* and *Cicero*, loved music, and occupied himself with drawing. Of his teachers, his journeys, his supposed studies at the universities, no certain evidence exists.

Having reached 30, the legal age for active citizenship, Dante took part in the official life of the Republic, in which we find him engaged for some five or six years (*ætat.* 31-37). He was enrolled in the City Guild of the Physicians and Apothecaries, one of the three Major Arts, such enrolment being a necessary condition of public office. In 1299 he was on an embassy to the commune of San Gemignano. From June to August 1300, he served as one of six elected Priors of the Republic. At this time six Priors and a *Gonfaloniere* formed the government: they were renewed every two months: and thus, the office of Prior was not one of great honour or importance. In 1301, Dante was chosen to superintend the enlargement of one of the city streets. And in the same year, he is recorded as taking part in the deliberations of the Council.

The years 1300-1302 were a stormy and critical period for the Republic and for the poet. Fresh civil war had broken out between the Blacks and the Whites. Under cloak of mediation, Boniface VIII. sent to Florence Cardinal Acquasparta, the very month when Dante was Prior, the design of the Pope being to reduce the State to a dependency of the Papacy. This plot Dante vehemently resisted, and he was apparently regarded as a leader of the resistance. A furious struggle ensued between the Black and the White factions, in which first one, then the other, was driven from the city. In effect, the Blacks acted with the Papal and anti-Imperial parties. In November 1301, Charles of Valois, in league with the Pope, entered the city in force, obtained command of it, and brought back the Black faction in triumph. Dante, who was now identified with the White party, although he had ceased to hold office, had already left the city, his later biographers say, on an embassy to the Pope; and he never entered it again. In January 1302, he was condemned of peculation and other great crimes, sentenced to pay a fine of 5000 florins, banished from Tuscany, and deprived of civil rights. Soon after he was pronounced contumacious, sentenced to be burned alive if he ever returned, and all his goods were confiscated. This sentence of outlawry was afterwards three times repeated. It casts a profound light over the whole *Commedia*, when we regard the exile of the poet, not as an ignoble act of local faction, but as the result of his patriotic and determined resistance to the monstrous intrigues of Boniface VIII.—*lo principe de' nuovi Farisei*.

For three or four years Dante took part with his companions in exile (for 600 of the White faction had been proscribed during

the revolution of 1301) in their fruitless campaigns and intrigues to return to their city. And we know from his own burning words (*Parad.* xvii. 61-70), that more bitter than all the pangs of exile was the society "of the evil and senseless crew" with whom he had to act, "whose ingratitude, whose impious, mad, and bestial courses drove him to make a party to himself alone." Thenceforth, Dante forswore faction and political life. And the remainder of his days, for nearly twenty years, were spent wandering from city to city, and from one protector to another.

His first "refuge and hostelry" was the Court of Bartolommeo della Scala, lord of Verona. Then we find him at Bologna, then at Padua, where he was attached to the universities, then in other parts of Italy, and ultimately in Paris, where he is thought to have lived in 1308-9. In Paris, we are told, he studied theology, philosophy, and rhetoric, and prepared to take a degree as Doctor in Theology. He was now upwards of 40; and it is often asked what was he doing at these famous universities, where he could not have been *in statu pupillari*. His latest biographers incline to the opinion that he combined teaching with study. Of more extensive journeys and other occupations we have nothing but liberal and vague assertions made long after his age. One object of his residence at these seats of learning would obviously be access to books; and it is probable that the vast learning of the poet was mainly acquired in this period of his exile; for there is nothing to show that the first 35 years of his life were specially devoted to study as a profession.

For a brief space, the hopes of Dante were raised again by the election as Emperor of Henry VII. of Luxembourg, and by the expedition into Italy (1310-1313), destined, as the poet fondly trusted, to restore peace to Italy. Dante, returning to Italy, presented himself to the Emperor, busied himself warmly with the Imperial projects of a restored Empire in Italy, and wrote the three passionate and haughty letters, dictated in 1311 to the kings and princes of Italy, to the people of Florence, to the Emperor, by *humilis italus Dantes Alagerii florentinus et exul immeritus*. The premature death of the chivalrous Emperor, August 1313, put an end to these grand dreams for his country and these burning hopes of restoration to his home. For eight years more the poet was a broken-hearted wanderer—

> "Tu proverai sì come sa di sale
> Lo pane altrui, e com' è duro calle
> Lo scendere e il salir per l' altrui scale."
>
> *Paradiso*, XVII. 58-60.

> Thou shalt prove
> How salt the savour is of other's bread;
> How hard the passage, to descend and climb
> By other's stairs.

Where these years were passed it is not quite certain, until the end. We are told that he abode at Lucca, at the monastery of

Fonte Avellana in the Apennines, at Verona, and at Ravenna. On the death of Clement v. (1314), Dante wrote an impassioned letter to the Cardinals, urging them to choose as Pope an Italian (the Babylonish captivity had now endured 9 years). In 1315, it may be in reply, Dante was condemned by a new sentence to be beheaded: he and his sons this time. And in the following year we are told that he might have been restored, if he had not contemptuously refused the penance that was demanded. In 1316 or 1317, he seems to have been harboured at Verona by Can Grande della Scala, of whom he formed high hopes. But the last two or three years of the poet's life were passed at Ravenna, under the protection of Guido Novello da Polenta. There he lived with his two sons, now exiles from Florence, and probably with his wife Gemma and his daughter Beatrice.

In 1321, the poet was sent by the government of Ravenna to Venice on an embassy, which was unsuccessful. On his return he died, September 1321, at the age of 56. He was buried with great honour, "in the garb of philosopher and poet," at the portal of Saint Peter's Church, in the spot where his tomb is still shown. The grave was at once threatened with desecration by the Papal party; but in 1483 the father of Cardinal Bembo raised the tomb that we now see under much restoration. The remains were at some time removed for concealment to an adjoining convent, and it is thought have now been discovered. The Florentines, who 20 years after his death again denounced their great poet as a rebel, an outlaw, and a thief, have many times since in vain sought for his bones. These at the 6th centenary of his birth, 1865, were finally refused by the city of Ravenna—which still remains the last "refuge and resting-place" of the greatest of Italians.

It was at the age of 9 that Dante first saw Beatrice Portinari, for whom he conceived a boyish love which grew into the mystical devotion that colours his whole poetry and life. There is nothing to suggest that she returned his affection, or even showed him more than occasional courtesy. She married at the age of 20, and died at the age of 24. The story of his love, his despair, and the poetic transfiguration of his good angel, is exquisitely told in the *New Life*. Some years, as it would seem, after the death of Beatrice, Dante married Gemma Donati, of the race of Corso Donati, the fierce chief of the Black faction. They had at least two sons and two daughters, who grew to maturity. There is no good reason to think the marriage unhappy. Gemma, with her children, did not share the poet's exile until the sons too were banished, when the family settled in Ravenna. There the daughter Beatrice became a nun. One of the sons settled at Verona, and founded a family, which long endured.

The world has long agreed to place on a line above all others the three supreme poets of mankind—Homer, Dante, Shakespeare. And this not merely by reason of their having in the highest measure

every gift of the poet, but by virtue of the vast range of human interests which each makes his field. Of the three, Dante is the weakest in simplicity, in universal charm, in variety, in the spontaneous magic of word and suggestion, and certainly in the glow of inexhaustible delight. In monumental force, in sustained imagination, in profound insight into character and life, Dante is the peer of all. In the sublime range of his theme—the sum-total of humanity and nature, the past, the present, and the future—in the profound synthesis of all knowledge, and the ideal co-ordination of human society as a whole—here he stands supreme. And it is doubtless on this ground that Comte has called the *Divine Comedy* "the incomparable epic, which still forms the highest glory of human art."

This is no place to dilate on the supreme gifts of Dante as poet, or to enter on the wide field of his numerous works. It is with the poet only that we are here concerned, and with the *Vision* alone. Nay, since this in itself is an inexhaustible field, we will confine our present notice to a single point, the relation of the *Divina Commedia* to the evolution of modern history. It is an accepted truism that this "Sacred Poem" sums up the spirit, the knowledge, the religion of the Middle Ages, whilst it created the Italian language, inspired religious art, and founded modern literature. Its influence is still growing, six centuries after the manhood of the poet, and it idealised all that man had felt, believed, and done in at least as many centuries before his birth. The whole range of Catholic Feudalism seems to defile before our eyes, and beyond it we see visions of the heroes and poets of antiquity and the prophets and lawgivers of the East. Dante, it is often said, knew all that could be known, in an age when this was a feat still possible for a single mind. We need no testimony to convince us of the vast range of his learning. "He was," as Villani truly says, "perfect poet and philosopher, with the most exquisite style that the language ever produced." He seems to have absorbed all philosophy, all theology, all science, all poetry, all art and all history, as these were then understood by the greatest intellects. And it was an age of great men: for during Dante's life there were living Roger Bacon, Albert the Great, Aquinas, Duns Scotus, Giotto, Petrarch, Saint Louis, Rudolph of Hapsburg, and Edward I.

In form, in colour, perhaps in design, the *Vision* represents the Catholic Feudalism which culminated in the Crusades. But Catholic Feudalism in its essence had expired about the time of Dante's birth with such men as Saint Louis and Simon de Montfort; and when Dante wrote a new era had begun. There is profound significance in this, that Dante's place in the *Polity* is with the *Western Revolution* and not with the age of the Crusades, the Friars, and Innocent III. The *Vision*, indeed, is saturated with the spirit of modern thought, of secular and not clerical morality, of civic energy, and of the supremacy of science. It is true that Dante could not

foresee the results of later time, and the mould of his imagination is Catholic in religion and Feudal in association. But no reformer of Church and State more fiercely denounced Popes and Cardinals, was more zealous for the right of private judgment of all things belonging to God or man, or more proudly true to republican simplicity and civic right. Enough has been said of Dante as Catholic mystic and as Imperialist liegeman. He was all this ; and there are whole cantos which breathe the spirit of St. Bernard and of Godfrey of Bouillon. But we are too apt to forget that the deeper and more potent spirit of the *Vision* is the inquiring mind of Roger Bacon, Aquinas, and Montaigne ; that Dante cares for authority as little as Francis Bacon or Hobbes ; that he is as redolent of the Renascence as Raphael or Shakespeare ; that he is a gentleman, a soldier, a lover, and a citizen. As Villani finely says : " For his virtues, science, and worth he seems to us so great a citizen, that it is befitting to give him perpetual remembrance."

Of the man himself, his own writings, the most pathetically personal in all literature, give us a vivid knowledge. He was born neither saint nor mystic : he was a man of the world, of audacious brain, of varied culture, with an exquisite taste for all forms of beauty and enjoyment. If remorseless criticism finds no authority for the portrait of the man of sorrows which is indelibly associated with our conceptions of the poet, it is difficult to resist the impression that, in the recovered fresco of the Bargello at Florence, we have the true features of the youth of such exquisite sensibility and genius before pain had hardened them into the stern mask that is familiar to us as the Poet of Hell. He suffered cruel disappointments, and he fell into many errors. He seems deeply conscious of his own faults, of pride, passion, and ungentleness. He seems unconscious how utterly unfit he was for the political and public career to which he devoted the first half of his life ; and the famous State letters of his mature years, with all their noble enthusiasm and passion, are amazing instances of the philosopher who meddles with affairs. In truth, the *sæva indignatio*, which never ceases to lacerate his heart, not a little detracts from the poetic beauty of his work. History and tradition record the strange awe with which his contemporaries watched the lonely man " who had seen hell " ; and we can well understand how his fellow-citizens, with Villani, found his learning somewhat too " arrogant, super-subtle, and disdainful, and found him, as philosophers are apt to be, rather ungracious in converse with the unlearned."

Truly he had his faults as well as his griefs. Yet indignation with him seems ever ready to blossom into most intense tenderness, pride towards men reaches forth into ideal humility in the sight of God, and that saturnine outside covered profound depths of love inexhaustible and pure. Thus it comes to pass that, with all its obscurity, bitterness, and gloom, the *Vision* has become the centre of a literature more full than that which gathers round any other

poem, and that it is hailed by Positivism as the foundation of the Bible that is to be. [F. H.]

For LIFE OF DANTE, G. Villani: *Chron.* bk. ix. c. 135. P. Fraticelli: 1861. G. A. Scartazzini: *Prolegomeni*, etc. (vol. iv.), Leipzig, 1890. R. W. Church: *Dante, an Essay.* P. H. Wicksteed: *Dante: Six Sermons.* Comte: *Testament*, and *Pos. Pol.* iii. 460.—For WORKS OF DANTE, G. A. Scartazzini: *La Divina Commedia*, 4 vols., Leipzig, 1874-1890; and ed. *Minore* in one vol., 1893. P. Fraticelli: *Comm.* 1 vol. 12mo; *Op. Minore*, 3 vols. 12mo. J. A Symonds: *Renaissance in Italy.*—TRANSLATIONS, *English Prose*, J. A. Carlyle, T. Okey, and P. H. Wicksteed (Temple Classics with text and notes, 3 small vols.—very useful); also W. W. Vernon, 6 vols. *French Prose*, Lamennais. *English Verse*, Cary, Longfellow. *La Divina Commedia* is in the Positivist Library. Portrait in fresco by Giotto, F.

TROUBADOURS, from the end of the 11th to the end of the 13th Century.

Auguste Comte has remarked (*Pos. Pol.* iii. 373-4) on the fitness of the Middle Ages for poetry in all respects but one. Defensive war supplied nobler themes than aggressive war; the ethical tone had been raised by chivalry and respect for womanhood. On the other hand, the social state was too unsettled for permanent work; language itself, the index to so much else, was rapidly shifting. The Middle Ages produced the *Nibelungen-Lied* and the *Chanson de Roland*. But the modes of life portrayed in these two poems were, like their language, undergoing rapid and often violent transformations.

The case was otherwise with that southern part of Gaul whose name of *Provence* indicates its early reception of Roman civilisation, and which stood somewhat aside from the central stream of barbaric invasion which devastated Italy. Yielding to the Goths, the most sympathetic of the northern invaders, it was saved from the Vandals and the Huns. In that favoured climate a civilisation grew in which Roman culture was more peacefully blended than elsewhere with the new life of the West. It is not surprising, therefore, that the Provençal language should have reached maturity earlier than any of the Romance languages, and that Dante should have been tempted to use it in preference to the common speech of Tuscany for his great poem. In Dante's time this language possessed a vast poetical literature, written and oral, extending over at least two centuries. Epic romance and love-songs were the principal themes, though political satires (*sirventes*) were not wanting. The composers passed under the name of *troubadours* (finders, inventors), corresponding to the word *trouvères* applied to the minstrels of northern France. They wielded great social influence; were patronised by monarchs like Richard I. of England and Alfonso II. of Arragon, and their society was courted by ladies of the highest rank, sometimes with tragic results.

Two of those poets are mentioned by Dante. The first was Arnaut Daniel, whom he meets in Purgatory (canto xxvi.), and

addresses as "the best workman of his mother-tongue, who surpassed all the rest in songs of love and tales of romance." Arnaut replies in the Provençal tongue. In his treatise on language, Dante says that he owes to him the lyrical form of some of his poems. He composed epical romances, one on the Rinaldo, of Carlovingian legend; another on Lancelot, perhaps the one which proved fatal to the lovers of Rimini. The second was Bertram di Born, a fierce warrior of Gascony, who fomented dissension between Henry II. of England and his eldest son, and is on that account placed by Dante in the *Inferno* with Mahomet and other dividers of men (canto xxviii.). Others of note were Peire Vidal (1150-1210 A.D.), Guillem de Cabestanh, of the same date, and Folquet, afterwards Bishop of Toulouse, and a fierce crusader against the Albigensian heretics. The same causes which brought into Southern France a premature Renascence brought also a premature religious revolt, suppressed by Innocent III. with stern severity. There were good reasons for the Albigensian crusade, stained though it was with needless cruelty. But it was fatal to the growth of troubadour poetry. [J. H. B.]

C. Bartsch: *Chrestomathie Provençale* (Selections)—now in 10th. ed. F. Hueffer: *The Troubadours*, 1878. H. J. Chaytor: *Troubadours*.

BOCCACCIO (*Giovanni*), b. 1313, d. 1375.

Giovanni BOCCACCIO was born in 1313 at Certaldo, near Florence. His father was a merchant, his mother of French origin. After studying for a time in Florence under the grammarian Giovanni da Strada, he went to Paris, apprenticed in a merchant's business, and remained there for six years. The next eight years of his life were spent at Naples, where he proposed to study law. It is said that the sight of Virgil's tomb impelled him to literature. Here he saw and loved Mary, an illegitimate daughter of Robert, King of Naples, the heroine of his Fiammetta; here, too, began his life-long friendship with Petrarch. Several of his works were written at Naples: amongst others his *Theseus*, a poem freely translated in the *Knight's Tale* of Chaucer.

On the death of his father, about 1350, he established himself in Florence. It was about this time, probably, that he wrote the *Decameron*: a collection of a hundred tales told to one another by a company of three young men and seven ladies, who had taken refuge in a beautiful villa from the plague which, in 1348, devastated Florence in its passage through Europe. The description of this pestilence forms a strange background for the luxurious grace and joyous licence of these tales, turning chiefly on the comedy of human life, not without mixture of tragedy and pathos. Many of them have found their way into our own literature through Chaucer, Shakespeare, and Keats. Their fame is due less, perhaps, to their intrinsic merit than to the highly-wrought beauty of the language,

which remained for many generations the standard of Italian prose; though, as some Italians have thought, it has exercised an effeminating influence on their literature. Boccaccio, in after life, regretted their publication, and before his death destroyed the manuscript; copies, however, had been taken by friends, through which they have come down to us.

It is certain that, by himself and his contemporaries, these tales and his other writings in Italian were regarded as of far less importance than his labours in the restoration of ancient literature. His work, *De genealogia Deorum*, is an elaborate treatise on ancient mythology. For the purpose of studying Greek, then an unknown language, he invited to Florence, Leontius Pilatus of Thessalonica, who lived with him for three years, and who translated Homer into Latin. In 1373, Boccaccio was invited by the Florentines to lecture on the *Divina Commedia* of Dante. His life of the poet and his Commentary on the first division of the poem have been preserved for us. But shortly afterwards failing health resulted in retirement to his native town, where he died December 21, 1375, a year after Petrarch, with whom he will be always associated as one of the heralds of the Renascence. [J. H. B.]

Decamerone: ed. Ugo Foscolo, Pickering, 1825. J. A. Symonds: *Renaissance in Italy. Decameron*, tr. in Henry Morley's "Universal Library," 1886. Boccaccio is buried in the Church of SS. Jacopo e Filippo at Certaldo.

CHAUCER (*Geoffrey*), d. 1400.

Geoffrey CHAUCER was born probably in London about 1340. His father and his grandfather belonged to the guild of vintners: of his early education nothing is known. In 1357 he was a page in the household of Lionel, Duke of Clarence, 3rd son of Edward III. Two years afterwards he joined the unsuccessful expedition into France, in the course of which he was taken prisoner. In 1367 he appears in the records as valet of the King's chamber. In 1372 he was sent on a special mission to Genoa to arrange for a port at which Genoese merchandise should be brought into the country. It is probable that on this occasion he saw Petrarch at Padua: he may have seen Boccaccio, who was then preparing his lectures on Dante. In 1374 he was made Controller of Customs, and occupied for twelve years from this date the rooms above Aldgate. In 1386 he was in Parliament as knight of the shire for Kent; where he was a strong supporter of John of Gaunt's party. With the accession of Richard II. he was for a time in disfavour, but in 1389 he was appointed Clerk of the King's Works. During the latter part of his life he occupied a house near Westminster Abbey on the site now filled by Henry VII.'s Chapel. He died, October 25, 1400, and was buried in the south transept of the Abbey.

Chaucer's early poetry was written under French influences, his later under Italian. He is known to have translated the *Roman*

de la Rose, though probably not that commonly attributed to him. From Boccaccio he borrowed the *Palamon and Arcite*, the *Troilus and Cressida*, and the *Knight's, the Franklyn's*, the *Reeve's*, and the *Clerk's Tales*, the last of these indirectly through Petrarch. But his racy humour, and his loving sympathy with the sights and sounds and fragrance of nature are all his own. The *Prologue* to the *Canterbury Tales* will remain the most popular and most solid basis of his fame. It was a happy stroke of genius to have seized the occasion of the yearly pilgrimage to the shrine of Saint Thomas, the champion of spiritual independence, for leaving us his lifelike portraiture of each phase of social life in the England of the 14th century. [J. H. B.]

A. W. Ward : *Chaucer* (Eng. Men of Letters). *Cambridge Hist. of Eng. Lit.* ii. ch. 7. J. W. Mackail : *The Springs of Helicon*. *Complete Poetical Works*, ed. by Skeat (1 vol. Oxford Poets). Portrait by Occleve (limning on MS.), B.M.

RABELAIS, d. 1553.

François RABELAIS was born at Chinon in Touraine, it is said, in 1483, or perhaps about 1490. His father was an innkeeper in easy circumstances. The boy was brought up in a Benedictine convent, and ultimately entered the Franciscan monastery of Fontenay-le-Comte, where he took priest's orders in 1511. His eager pursuit of knowledge, especially of the Greek language, no less than his mocking spirit, drew down on him the enmity of the friars, who passed on him a sentence of perpetual imprisonment. Rescued by the vigorous intervention of Tiraqueau, the lieutenant-general of the district, he obtained in 1524 permission from Pope Clement VII. to enter a Benedictine abbey. But this he speedily left. For some time he lived in the household of Geoffroi d'Estissac, bishop of the diocese, in whose house he met many distinguished men of letters, Marot, the brothers du Bellay, and probably also John Calvin. But persecutions waxing hot, he left this part of France and betook himself in 1530 to Montpellier, then one of the first schools of medicine in Europe.

Here he at once took part in public exposition of medical subjects, especially of Greek writers on medicine, and was admitted to the degree of bachelor within a month of his matriculation. Shortly afterwards he was chosen to plead the privileges of his university in Paris before the Chancellor. From Montpellier he proceeded to Lyons, where he occupied himself in editing and printing various works, especially those of Hippocrates and Galen, maintaining meantime active correspondence with men of learning. Here the first conception of his Pantagruel occurred to him. Starting with the motive, afterwards developed by Cervantes, of ridiculing the inflated romances of so-called chivalry, he made his caricature the vehicle for satire on the follies, pedantries, and bigotries of his time,

illumined by contrast with the new spirit now rekindling Europe, which Rabelais was amongst the keenest to receive and propagate. The audacity of his onslaughts on the papal system (*e.g.* book iv. ch. 48-52), equalled that of Luther, and would have brought him to the stake but for the intervention of Francis I. and other influential friends; many of the highest ecclesiastics in France being deeply touched by the reforming spirit. It was soon seen, moreover, that Calvin's reconstruction threatened a new spiritual tyranny as severe and less social than the old; so that Rabelais, attacking both, was safe from either.

The book was published piecemeal at long intervals. The second part, containing the beginning of Pantagruel, appeared in 1533. The first part, Gargantua, in the year following. The third book was not published till 1546, the fourth five years later: the fifth was posthumous. In 1534 Rabelais took refuge from imminent persecutions in Rome, which he had already visited, and where his friend Cardinal du Bellay was powerful, and obtained for him letters of dispensation from Paul III., for his breach of monastic vows. In 1537 he took his doctor's degree at Montpellier, and practised medicine in various parts of France. His last years were spent as parish priest at Meudon, not far from Paris, widely and deeply respected by the leading spirits of his time. He died in Paris, April 9, 1553, his wild humour not leaving him at the last. "My boots have been greased for the long journey," alluding to the sacrament of extreme unction; "I go to seek the great Perhaps"—are some of the sayings traditionally ascribed to him. [J. H. B.]

G. Saintsbury: *French Literature*; *The French Novel*, vol. i. 1918; and Article RABELAIS, *Encycl. Brit.* Walter Besant: *Rabelais*, in "Foreign Classics." A. Tilley: *François Rabelais*, 1907. W. F. Smith: *Eng. Trans.* 1893; *Rabelais in his Writings*, 1919. C. A. Sainte-Beuve: *Causeries du Lundi*, iii.

SWIFT (*Jonathan*), b. 1667, d. 1745.

Jonathan SWIFT was born in Hoey's Court, Dublin, November 30, 1667. His father, a cousin of the poet Dryden, who had held an office in the King's Inns, died poor; and the boy depended on an uncle for his education. He was taught at a school in Kilkenny, and at 14 entered Trinity College, Dublin, where four years afterwards he was refused his degree on the ground of "dulness and insufficiency." He ultimately obtained it, but was noted for insubordination throughout his university career. In 1688 he came to England and obtained an introduction to Sir W. Temple, with whom he lived for many years as secretary. The relation was interrupted by a quarrel of some years' duration, but was renewed and continued till Temple's death in 1699. During these years Swift remade his education: he came into frequent contact with William III. and other political personages: he wrote his celebrated defence of Anglicanism known as the *Tale of a Tub*; also the *Battle*

of the Books, an episode in the contest then going on in France between ancient and modern literature, in which Swift sided with the ancients. Here, too, it was that he met Esther Johnson (Stella), who exercised so strong an influence over his life.

In 1695 Swift took orders, and at Temple's death became private chaplain to Lord Berkeley, Lord Lieutenant of Ireland, from whom he obtained the vicarage of Laracor, in Meath. In matters spiritual he was a strenuous Anglican, but in politics held liberal views. Nevertheless (1710-14) he lent the full weight of his powers as a publicist to the government of Harley and Bolingbroke, and wielded an extraordinary personal ascendency over both those Ministers. Shortly before their fall, Swift obtained the Deanery of St. Patrick in Dublin : and the rest of his life was spent in Ireland. In 1716 he secretly married Stella, with whom he had maintained unbroken friendship for many years.

Swift's remaining years, till the illness that paralysed his mental powers, were honourably marked by his energetic protests against the misgovernment of Ireland, and in particular against the suppression of her manufactories in the interest of English traders, and the interference with her currency to please a Court favourite. "Do not the corruptions and villanies of men eat your flesh and exhaust your spirits ?" was his cry to a friend. Justly he described himself in his self-written epitaph as "an unswerving defender of freedom," looking forward to the rest of the tomb, "where fierce indignation should torture his heart no longer." In 1726 appeared his greatest work of fiction, *Gulliver's Travels*. His political allusions have long grown obsolete. But the philosophical analysis of the human standard by which human praise and blame are measured, clothed in a garb of realistic detail and audacious humour, insure its survival. Swift died in Dublin, October 19, 1745, after a long period of mental decay and was buried in St. Patrick's Cathedral. He carried with him to the grave the respectful sympathy of the Irish people, whose cause he had defended. [J. H. B.]

Leslie Stephen : *Swift* (Eng. Men of Letters). Sir W Scott : *Life*. Sir H. Craik : *Life*. W. E. H. Lecky : *Leaders of Public Opinion in Ireland* (ed. of 1871). Portrait by Jervas, N.P.G.

CERVANTES (*Miguel de Cervantes Saavedra*), b. 1547, d. 1616.

Miguel de CERVANTES Saavedra was born Oct. 9th, 1547, at Alcala de Henares, near Madrid, of an old Castilian family. He studied for two years at the University of Salamanca, afterwards at Madrid. Here he entered the household of Bishop (afterwards Cardinal) Acquaviva, with whom he went to Rome. In 1569 he joined the expedition then forming under Marc Antonio Colonna to resist Selim II., who had seized Cyprus and was threatening the Mediterranean. In the great sea-fight of Lepanto (1571) Cervantes

distinguished himself and was severely wounded. He continued in active service in Italy and elsewhere till 1576, when the vessel in which he was returning to Spain was captured by the Moors. For nearly five years he remained a prisoner and slave at Algiers, making numerous but fruitless attempts to escape, till at last he was ransomed by his friends for 500 gold ducats. He rejoined the navy, and served there till his marriage in 1584. From this time he devoted himself to literature in Valladolid and Madrid.

His first attempts were dramatic. But the brilliant genius of Lope de Vega was in the ascendant, and the sombre tragedies of Cervantes were neglected. Being very poor, he sought and obtained the post of assistant purveyor to the fleet. This brought him to Seville, where he lived for many years, and wrote some of the *Novelas Ejemplares*, published long afterwards. In 1596 he was involved in difficulties connected with the bankruptcy of a friend. Between 1598 and 1602 he appears to have been in a debtor's prison in a small town of La Mancha. Here, being then past middle life, he wrote the first part of *Don Quixote*, published in 1605. It gained instant popularity: 4 editions were published in that year; but it brought little profit to the author. The last 10 years of his life were spent at Madrid. Not till 1615 was the second part of Don Quixote completed and published—an unusual instance of prolonged vigour, for the end of this great work equals the beginning. Cervantes died April 23, 1616; the same day of the same year and month as Shakespeare: though really ten days earlier, as the English calendar was not reformed. He was buried in the Convent of the Trinity, but without a monument. The convent, with its tombs, was removed fourteen years afterwards, and no one knew where he lay.

His great work is full of wisdom, apart from the delight which it has given to many generations of old and young. A poet is not a moralist clothing sermon in allegory. But if he is really great he will not fail, while doing his proper work, to throw side-lights on difficult problems of life and character. Thus it is that the two characters in this masterpiece illustrate the two types of mental disease. The balance between the inward workings of the mind and outward impressions, which constitutes mental health, is shown as distributed in two opposite ways. In Don Quixote thought tyrannises over sensation; in Sancho sensation overwhelms thought. Thus two insane states, could they be combined, would result in sanity. Each in his own way is swayed by the logic of Feeling: the knight by eager desire for the restoration of the imagined ideal of chivalry; the squire by greed for gain and power. Each, apart from his craze, has admirable qualities: the one is an accomplished gentleman, brave, well read, generous, and courteous; the other is affectionate and shrewd. Deep insight is shown in the effect of long intercourse with the master on the dull wit of the man; and in the means taken by his friends to dissipate the knight's delusions.

The varied incidents of the story, full of local colour, are of interest as enduring as the *Iliad*. Cervantes announced his purpose to be ridicule of the old books of chivalry. By these he meant not the simple and heroic ballads of the *Cid* and of *Roland*, but the turgid, unreal prose romances of the 15th and 16th centuries, which bore no relation to human life and deadened the feeling for noble art. He sought to revive the poetic spirit by bringing it from cloudland to earth. The story of the Algerian captive, inserted with consummate skill into his narrative, brings the fantastic unrealities of the romances into admirable contrast with the tragic struggles of actual life, which Cervantes knew so well. [J. H. B.]

H. E. Watts : *Miguel de Cervantes*. C. A. Sainte-Beuve : *Noureaux Lundis*, viii. *Don Quixote*, translated by J. Ormsby, 4 vols. *Pos. Pol.* i. 575 ; ii. 264 ; iii. 486. *The Exemplary Novels* and *Don Quixote* are in the Positivist Library.

LA FONTAINE (*Jean*), b. 1621, d. 1695.

Jean LA FONTAINE was born 8th July 1621 at Château Thierry, in Champagne, where his father was Commissioner of Forests. The son showed no signs of remarkable intelligence until the age of 22, when he was so stirred by the poetry of Malherbe that he began to write verses himself : a taste which his father encouraged. He succeeded, as was usual under the administrative system of those times, to his father's office. He married, but the marriage was uncongenial, and, indeed, throughout life La Fontaine appears to have shown himself somewhat insensible of its practical obligations, private or public. Except to the few who recognised his peculiar genius, he was content to appear dull and unsocial. Fortunately from those few he received the material support which he needed. Among the first to appreciate him were the Duchesse de Bouillon, and Fouquet, the ambitious superintendent of finance, whose career ended so disastrously. After Fouquet's exile, La Fontaine lived for twenty years in the house of Mme. de la Sablière, his time there being entirely at his disposal. In 1684, at the death of Colbert, he succeeded to his place in the Academy, being preferred to Boileau. On the death of Mme. de la Sablière, La Fontaine, who appears to have made no attempt to earn a livelihood, was for a time in distress, till in 1693 M. d'Hervart offered him shelter. He died 13th April 1695.

La Fontaine's place in the history of poetry is clearly defined. He possessed in the highest degree the art of telling a familiar story with simplicity and grace. His *Tales*, taken from Boccaccio and other novelists of the later Middle Age, have the licence of their originals, and are not fit for general reading. His *Fables* are mostly the old stories of Phædrus and Æsop, told with a delightful charm entirely his own, which has rendered them immortal. The language

is of the purest and raciest kind, untouched by the ornate classicalism of his time. It was said of him by La Harpe : " La Fontaine invented nothing except his style : and the secret of that died with him." [J. H. B.]

G. Saintsbury : *French Literature* ; and Article, *Encycl. Brit.* C. A. Sainte-Beuve : *Portraits Littéraires*, i. ; *Causeries du Lundi*, vii. La Fontaine's remains are now in Père La Chaise. The *Fables* are included in the Positivist Library. Portrait by De Troy in the Library at Geneva ; Min., L.

BURNS (*Robert*), b. 1759, d. 1796.

Robert, son of William BURNS, a Scotch farmer, was born near the town of Ayr, January 25, 1759. His father, though very poor, gave him a solid English education ; and the boy read eagerly all books he could come at. But the life was hard, and at the age of 15 Burns was working as his father's head labourer. The father died in 1784, brought to great straits through the failure of a lawsuit. Burns, with his brother Gilbert, struggled on bravely, but with poor success. He was then in the first glow of his passion for Jean Armour, whom he finally married, and but for her parents' opposition would have married earlier. During the next two years many of his best poems were written, as the *Cottar's Saturday Night*, *Holy Willie's Prayer*, *Address to the Deil*, *The Mouse*, *The Daisy*, and others. In 1786, having published some of these to gain passage-money for the West Indies, an invitation to Edinburgh, then containing the most brilliant intellectual society in Britain, made him famous. He gained, however, nothing but the rather meagre appointment of exciseman, with which he settled in Dumfries. Like other brave spirits of his time, he was accused of sympathy with the French Revolution. It is the fact that in the spring of 1792, Britain being still at peace with France, he sent to the Legislative Assembly two guns that had passed into his hands from a captured smuggler. And two of his noblest lyrics, *Scots wha hae*, and *A man's a man for a' that*, written 1792-5, show that the fiery heat of the great crisis had reached him. His poetry was the outcome of his nature. His scathing satire of Calvinistic hypocrisy, the wild humour of *Tam o' Shanter*, the burning passion of his love-songs, will live as long as the language endures. Burns died at Dumfries, 21st July 1796.

[J. H. B.]

J. G. Lockhart : *Life*. Burns is buried in St. Michael's Churchyard, Dumfries. Portraits by Nasmyth, S.P.G. and N.P.G.

DEFOE (*Daniel*), b. 1661, d. 1731.

Daniel DEFOE, son of James Foe, a butcher of St. Giles's, Cripplegate, London, was born either 1660 or 1661. Both his parents were Dissenters : he was educated at a Nonconformist school in Newington Green, where he was taught, or at least acquired,

a desultory knowledge of many languages. In politics he belonged of course to the liberal side. In 1683 he joined Monmouth's expedition. In 1688 we find him with William's army as it advanced towards London. After two failures in business as hosier, then as potter, in which, however, creditors were scrupulously satisfied, he was appointed (1695) Accountant to the Commissioners for Glass Duties, an office which was suppressed four years afterwards. Then he began his permanent career as a public writer.

His *True-born Englishman* (1700) was a defence of William III. against national prejudice. At the King's death, when the High Church party revived, he published his ironical pamphlet, "*The Shortest Way with Dissenters*." For this he was sentenced to fine, imprisonment in Newgate, and three days of the pillory. But a large crowd of admirers formed a bodyguard round the pillory, decorated it with flowers, and drank his health. In prison he began his *Weekly Review*, a political journal maintained for many years. His imprisonment was not of long duration, and in 1706 he was sent to Scotland as a political agent for the promotion of union. In 1712 he was again prosecuted and imprisoned for political pamphlets. About this time he began to write *Robinson Crusoe*, the first part of which appeared in 1719. Other works of fiction followed in rapid succession, *Captain Singleton*, *History of the Plague*, *Colonel Jack*, *Moll Flanders*. The latter years of his life were passed in comfort in a large house and garden at Stoke Newington. He died 26th April 1730, in Ropemakers' Alley, Moorfields, and was buried in Bunhill Fields.

The characteristic of Defoe is the close and minute observation of human life, which makes it difficult for the reader of his fictions to refrain from thinking them records of actual events. From this strict adherence to reality comes the most striking feature of his Crusoe. The shipwrecked sailor, to all seeming "out of Humanity's reach," yet owes everything to Humanity: his reasoning powers, his hopes and fears, his industrial skill, the tools with which he works. No more vivid proof could be given of the impossibility of separating Man from his Race: a proof the more cogent that it comes not from a philosopher with a thesis to defend, but from an artist who sought simply to depict the truth. [J. H. B.]

W. Minto: *Defoe* (Eng. Men of Letters). T. Wright: *Life*. J. Forster: *Essay on Defoe*. L. Stephen: *Hours in a Library*, i. *Robinson Crusoe* is in the Positivist Library. Portrait by Richardson; engr. in *Jure Divino*, 1706.

GOLDSMITH (*Oliver*), b. 1728, d. 1774.

Oliver GOLDSMITH, the son of a clergyman of the Church of Ireland, was born at Pallas in the county of Longford, in 1728. He was educated at Trinity College, Dublin, where he took his degree in 1749. He remained there for two years longer studying anatomy and

medicine, and passed thence to Edinburgh, which, however, difficulties incurred by generosity to a fellow-student forced him to leave. The next year of his life was passed in travel on the Continent, sometimes with a pupil, oftener alone on foot, earning a livelihood by his flute. He reached England in extreme poverty in 1758, and for the rest of his life maintained himself by his pen. Though work was not lacking, his improvidence and reckless generosity frequently involved him in difficulties ; and it was on one of these occasions that his friend Samuel Johnson, finding the MS. of the *Vicar of Wakefield*, and recognising its worth, sold it to a publisher for £60. The publication was delayed, however, till 1765, when the poem *The Traveller* had made the author's name more famous. He wrote several plays, one of which, *She Stoops to Conquer*, produced in 1772, has maintained its popularity. In the brilliant society of which Dr. Johnson was the centre, Goldsmith held a prominent place. He died 4th April 1774, beloved by many poor people whom in the midst of his own poverty he had befriended. The Latin epitaph over his monument in Westminster Abbey is of Johnson's composition. It says that he worked in every department of literature, and excelled in all. This is exaggerated praise. His fame will rest finally on the exquisite idyll of English rural life, depicting that characteristic side of it which so deeply impressed Goethe ; the example of refinement and simplicity of life set by the clergyman's family to the remote and untaught population of country villages. [J. H. B.]

John Forster : *Life of Goldsmith.* William Black : *Goldsmith* (Eng. Men of Letters). A. Dobson : *Life.* J. Boswell : *The Life of Samuel Johnson.* Goldsmith is buried outside the Temple Church, London. *The Vicar of Wakefield* is in the Positivist Library. Portrait by Reynolds, copy N.P.G.

ARIOSTO (*Lodovico*), b. 1474, d. 1533.

Lodovico ARIOSTO was born September 8, 1474, at Reggio in Lombardy, a fortified town belonging to the duchy of Ferrara, held by the family of Este. His father Niccolo was governor of the fortress, and held other important offices. His mother Daria Malaguzzi was of noble birth. He received the education of a scholar, a lawyer, and a soldier. On the death of his father he was left the eldest of ten children, mostly young and unprovided for. The obligations thus created, always faithfully discharged, explain his dependence on the unworthy patronage of Cardinal Ippolito d'Este, brother of the Duke, who took him into his service in 1503.

In 1506, amidst the distractions of a court life, involving service as a soldier in the war with Venice, and two diplomatic missions to Rome, he began his great poem : the first edition of which was published at Ferrara in 1516. It contained passages of extravagant praise of his patron and his family, for which, however, he received no thanks. In the following year he left the Cardinal's service

and entered that of the Duke, his brother. In 1521-3, we find him Governor of Garfagnana, a rebellious district in the Apennines; an uncongenial exile vividly described in one of his satires. On his return, he built for himself the small house still standing at Ferrara, where the remainder of his life was spent in the revision and enlargement of his great poem, and in other literary work, varied by occasional diplomatic missions. In 1532 the third and complete edition of the *Orlando* appeared in 46 cantos. In the following year June 6, Ariosto died at the age of 58. He had been secretly married after a long attachment to Alessandra Benucci, who was not, however, the mother of his two sons. His life was not free from error: but his character was transparent, genial, and noble, and free from any sordid or inhuman taint. His *Satires* (poetical epistles to friends, containing much biographical detail), are full of shrewdness and wisdom; the letter to his cousin Annibale Malaguzzi on his marriage is especially noteworthy. His ideal of womanhood and of man's conduct to woman was a high one.

Ariosto was in close relation, as the last canto of his poem shows, with the principal members of the brilliant society of men and women who constitute the Italian Renascence. The barbaric simplicity of the Middle Age had passed away, leaving its record in the *Song of Roland*, noblest of mediæval epics, chanted by the minstrel Taillefer before the Norman warriors at Hastings. That poem was the greatest, but by no means the first, of the innumerable ballads that surrounded Charlemagne's life and work with a halo of legend. The *Chronicle* of Turpin followed; adopted in 1092 by Pope Calixtus II. as the orthodox edition of the story. This, again, under the impulse of the Crusades, gave birth to a vast literature of romance, in which the events of many centuries were rolled together, and adorned with wild and extravagant fable. Among those romances Boiardo's *Orlando Innamorato* was distinguished by elaborate invention and technical skill. It told of a beautiful Eastern princess, Angelica, who, coming westward in the midst of the struggle between Saracen and Christian, brought jealousy and confusion into either camp; Roland, the chief of Charlemagne's warriors, known to Italians as Orlando, being one of her victims.

Ariosto took up Boiardo's unfinished tale. In his poem, Orlando, infatuated by his love, deserts the Christian camp in pursuit of Angelica at a time of imminent danger, and ultimately goes mad at hearing she has married another. His reason is recovered by miraculous intervention, and he strikes a final blow for the Christian cause. With this love-theme Ariosto has intertwined a second and more prominent subject—the loves of Roger and Bradamante, fabled progenitors of the house of Este. In Roger, Ariosto has portrayed a hero endowed with every knightly virtue, no saint or angel, yielding sometimes to the passions of a man, but of a man perfectly true and loyal. Bradamante, the heroine, combines the adventurous valour of a knight with the purity, tenderness, and passionate

ardour of a woman. The threads of destiny that brought them together for brief moments, again and again to be parted through long times of trial and strain on their mutual trust; the triumph of love over difference of creed—for the hero was Mussulman; the rigorous subordination of love to the call of knightly duty,—these things are interwoven, with marvellous art that seems artless, into the web of the poem. From these two themes numberless others branch out, fantastic, tragic, or gay; in a few rare instances overstepping into licence. But these love-themes, and all that follows from them, are subordinate to the central subject of the poem—the defence of the Western world against Saracen invasion. The danger was not wholly over when Ariosto wrote. Twenty years before his birth Constantinople had been taken by the Turks; and he died half a century before Lepanto. Carlovingian history, seen through the perspective of the Crusades, was strangely transmuted in Ariosto's story as inherited from his predecessors, but not in its essence falsified. Instead of Charles Martel repelling the Saracens from Tours, we have the legendary Charlemagne, an old man of priestly rather than kingly type besieged in Paris, regarded by Ariosto as the focus of the Western world. Twice is Paris in imminent danger (cantos xiv.-xviii., and xxv.-xxxi.), twice divinely rescued by confusion thrown into the hostile camp. The foe is driven back to Arles, and the final victory decided by combat between three chosen champions of either side (cantos xxxviii.-xli.).

Thus the great period of defensive war, with all the virtues of chivalry and loyalty to which it gave birth, found its poet in Ariosto. Most noteworthy is the ethical tone of his poem. The Church and the Catholic creed are seldom mentioned, and with cold and distant respect: the morality throughout is feudal, chivalrous, human. The Mussulman is a foe, but a generous foe, as capable of loyalty and courtesy as the Christian. Friendship between the two is noted as a virtue (canto i. st. 22); and though Roger is at last baptised, Bradamante's love for him is in no way affected by his alien creed. Once, indeed, Ariosto speaks (canto xxi. st. 1) of Holy Faith robed in a veil of spotless white. But to our surprise we find that with theological dogma this faith has nothing to do. It is the faith that binds noble spirits together in mutual trust; the loyal abiding by the pledged word that when once given, whether strengthened by an oath or not, whether in solitude or before the face of men, is never to be broken.

Of the beautiful style of Ariosto—flowing as if improvised, yet controlled by a most fastidious ear—nothing useful can be said in this place. He was one of the three poets whom Comte read with the greatest pleasure: Homer and Dante being the others. [J. H. B.]

Pos. Pol. iii. 485; also *Pos. Catech.* 11th conversation. Ariosto has been translated by Harrington, Hoole, and Rose. The best Italian edition is that of Panizzi (London, 1834). J. A. Symonds: *Renaissance in Italy*, vol. v. Ariosto is buried in the church of San Benedetto, Ferrara. Selections from his works are in the Positivist Library. Portrait by Titian, N.G.

LEONARDO DA VINCI, b. 1452, d. 1519.

Leonardo was the natural son of Piero DA VINCI, an advocate of Florence, and was born at Castello da Vinci, near Florence, in 1452. He was legitimatised and educated by his father along with a later legitimate family. As a child he showed precocious genius in music, mathematics, mechanics, and every form of art. He was placed in the study of Andrea Verrocchio, who was sculptor, engraver, and painter. His youth was passed in an extraordinary range of studies, and his endowments border on the miraculous. With great beauty and strength of person, he united every accomplishment and learning of his age. He was mathematician, engineer, architect, musician, poet, sculptor, painter, anatomist, botanist, and physicist.

At the age of 25 Leonardo was already a man of mark, with commissions from the government and from Lorenzo the Magnificent. The whole range of Nature in its most fantastic as in its most obscure forms became the subject of this universal genius. And we now know that about the age of 30 he visited the East, Constantinople, Asia Minor, and became engineer to the Sultan of Cairo.

It was as engineer, architect, mathematician, sculptor, artist, and general director of artistic, scientific, and mechanical works that about 1484 Leonardo was invited to Milan by Lodovico Sforza. There he worked on a multiplicity of undertakings for 15 years. His great works of art were the bronze statue of the Prince, never completed, and the fresco of the Last Supper (the *Cenacolo*), long a ruin. On the occupation of Milan by the French, in 1500, Leonardo returned to Florence, where he entered on his famous rivalry with Michael Angelo. After 12 years in Florence and the neighbourhood he went to Rome in 1514, where Raphael was in the height of his glory. Being slighted by the Pope (Leo X.) and overshadowed by the reputation of his younger rival, Leonardo returned with Francis I. to France, in 1516, where he settled, dying near Amboise, on the Loire, in 1519, at the age of 67.

Leonardo, besides being one of the greatest of painters, was one of the earliest, the most wonderful, and most versatile of all the great men of the 15th century Revival. A large part of his life was devoted to the applied sciences and to inventions in every department of human knowledge. Hallam declares him to be the first name of the 15th century, and to have anticipated many of the discoveries of modern science. He has left works on mathematics, engineering, hydraulics, anatomy, botany, and also an immense collection of sketches, studies, grotesques, and caricatures. His *Treatise on Painting*, which is included in the "Positivist Library," has been translated into all European languages, and is the foundation of all that has been written on the art. As a man, Leonardo was intensely ambitious, haughty, capricious, dreamy, and restless.

With gigantic conceptions, unattainable ideals of perfection, and an insatiable thirst after new achievements, Leonardo was continually correcting and refining, abandoning old work for new, until he made little complete, and leaves a life which is a long catalogue of abortive undertakings, and three or four works of supreme beauty and perfection.

It is a melancholy reflection that the greatest natural genius of his age has left nothing but some wonderful theories and suggestions, and that of this consummate master no work of art survives which does justice to his powers and is in good preservation. Very few indeed of the easel pictures attributed to Leonardo are certainly known to be his own work ; amongst these few are the *Mona Lisa* portrait in the Louvre, and at least the heads and composition, if not the whole, of the *Madonna* in the National Gallery. His greatest work—the *Cenacolo*, 1498—has recently been skilfully treated, when it was almost a ruin, and has recovered much of its power. It was the earliest example of a composite scheme of figures on a grand scale and it was amongst the finest ever produced. Leonardo was, by more than 20 years, the senior of Michael Angelo and Titian, and by more than 30 years the senior of Raphael and Correggio. As Vasari truly says, he was the earliest great master of the Modern manner. He was unquestionably the founder of the Italian process of oil-painting ; and his infinite labour and continual experiments vastly increased the technical resources of the art. He is also the first who united sublime conceptions with perfect beauty. This mighty genius, ruined by ambition, pride, and egoism, has at least left to us the tradition of consummate perfection as the ideal of the artist. [F. H.]

For LEONARDO, refer to J. A. Symonds : *Renaissance in Italy*, vol. iii. Mrs. Heaton : *Life of Leonardo da Vinci*. For LIVES AND WORKS of the Painters in this section, refer to J. A. Crowe and G. B. Cavalcaselle : *History of Painting*, 2 vols. Kugler : *Handbooks of Painting*, trans. 4 vols. Mrs. Jameson : *Memoirs of the Painters, Legends of the Monastic Orders*, and other Art works. S. Reinach : *Apollo* (Eng. trans. 1907). *Encycl. Brit.* : Series of Articles by S. Colvin, Middleton, Rossetti, etc. Brief Lives and summaries are in *Official Catalogue to National Gallery*, by Sir Frederic Burton, and also in *Handbook to National Gallery*, by E. T. Cook. Leonardo is buried in the Cloisters of St. Florentin, at Amboise. Drawing in chalk by himself, Turin.

TITIAN (*Tiziano Vecellio*), b. 1477—sed quære—d. 1576.

TITIAN was born at Cadore, on the borders of Friuli, of an ancient family. At the age of nine he was taken to Venice, and soon studied under Bellini. He also knew in Venice, and was influenced much by, Albert Dürer and Giorgione, his fellow-pupil. On the death of the latter, in 1511, Titian, then 34, was recognised as the chief of the Venetian painters. His whole life was passed in Venice, or in his native Cadore and the mountainous country around, except for some short journeys, late in life, to Rome and to Bologna. He was held in the highest honour by the Emperor Charles v., who

made him Count of the Empire and Knight of the Golden Spur. Philip II. of Spain continued this patronage. Titian resisted the invitation of Henry III. to visit France. In his house in Venice he lived with great hospitality and splendour, surrounded by men of eminence, poets, painters, and soldiers, amongst others Ariosto, Sansovino, and Pietro Aretino. He lived happily with his wife, till her death in 1530 (he was then 53); and then with his sister Orsa, and his daughter Lavinia. He was of a noble, generous, affectionate, and joyous nature, though both luxurious and improvident. He died of the plague in 1576, at the age of 99, almost literally brush in hand; and was buried with great pomp, and by special decree, in the Church of the Frari. This career of 90 years was the longest working life of any painter; and perhaps, we may say, of any eminent man in history; for Sophocles, whom Titian so much resembles, did not begin his art at the age of nine, and he died at the age of 90. But it is now thought that Titian ante-dated his birth by some ten years.

As a painter, Titian is the acknowledged chief of the Venetian School; the greatest master of colour that the world has known and the greatest painter of portraits. His special mark is the complete and harmonious prefection of his method, his equal mastery of all the sides of art, and of all subjects, whether in the realm of Nature or of Man. There is a stately repose, a glowing nobility, and an unerring judgment in his masterpieces. He is, of all painters, the one who has the fewest defects of his qualities, and is the least open to criticism; that one who, as master of the brush, still stands supreme. Titian never wearies us, never exaggerates, has no kind of mannerism, and never fails in dignity. Wanting as he is in profound imagination and passion, his joyous sympathy with all forms of beauty and of life, his splendid sense of colour, his dignity and grace, make him equal to the most varied and the noblest tasks, even in devotional art, for which indeed he had no real inspiration. He may be well studied in the National Gallery. [F. H.]

J. A. Crowe and G. B. Cavalcaselle: *Life of Titian*, and see under LEONARDO. Portrait by himself, F.

MICHAEL ANGELO (*Michelangelo Buonarroti*), b. 1475, d. 1564.

MICHAEL ANGELO, the son of Lodovico Buonarroti Simoni, of an honourable, if not noble, family of Florence, was born near Arezzo on 6th March 1475 (not 1474). He was apprenticed at the age of thirteen (in 1488) to the painter D. Ghirlandajo, but he showed a genius for sculpture, and works of his hand in both arts still exist, executed when he was quite a lad. At the age of fourteen he attracted the attention of Lorenzo the Magnificent, and was admitted to study in the Academy of Ancient Art which Lorenzo had founded in the Medici Palace. Here Michael Angelo developed his genius

as a sculptor, and it was here (*ætat.* 16) that his rival, Torregiano, struck him with a mallet, crushing the nose on his face, which disfigured him for life. During the whole of this period Michael Angelo studied anatomy with passion, and practised the art of sculpture.

His great contest with Leonardo in designs for the council chamber of Florence belongs to the years 1504-6. In the latter year (*ætat.* 31) Michael Angelo first came before the world as a great painter. His *Cartoon of the Pisan War*, partly preserved to us by the engravings of Marco Antonio, produced an immense sensation on all who studied it, particularly on Raphael, and was styled by Cellini "the School of the World." It was, however, not so much a picture as a sensational academic study of limbs, and if regarded as an object of imitation its effects could not have been other than disastrous. The same thing, so far as we can judge, may be said of Leonardo's cartoon.

In 1506 (*ætat.* 31) Michael Angelo was summoned to Rome by Pope Julius II., to undertake his vast mausoleum. On this enormous work Michael Angelo was engaged for a large part of his life, the only result being the *Moses* at Rome and some unfinished statues. In 1508 (*ætat.* 33) Julius compelled Michael Angelo to undertake the fresco decoration of the Sistine Chapel, the ceiling of which is a vault 150 feet in length by 50 in breadth. This gigantic work, executed entirely by the master's own hand in about 4 or 5 years, is unquestionably the most stupendous single achievement of modern art. Inscrutable, terrible, profound, in parts of exquisite beauty, this vast creation of a single mighty genius has been for centuries the wonder of mankind, in spite of the limitations imposed on the artist by the conditions, and of his own over-strenuous mannerism. These frescoes are the work more of a sculptor than of a painter, and are not merely works of art, but poems which are worthy of Dante.

On the death of Julius II. (1513) Michael Angelo returned to work as a sculptor, and in 1524 (*ætat.* 49) he began the sublime Medici Chapel at Florence, which, with its six colossal statues, in entirely the work of his hand. These are the grandest works of modern sculpture. In 1527 he was employed as engineer in defending the republic against the Medici Princes. In 1534 (*ætat.* 59) Michael Angelo was summoned to complete the frescoes of the Sistine Chapel with his *Last Judgment*. This enormous work is rather the *tour de force* of a consummate draftsman than a picture, though it contains some of the most original conceptions of the mighty master. It was exhibited in 1541 (*ætat.* 66). These, with the frescoes in the Pauline Chapel, are the last works of painting that he undertook. In 1547 (*ætat.* 72) Michael Angelo was employed as architect of St. Peter's at Rome, and continued till his death to labour on its construction. The cupola is entirely his work; and, had his plan of a Greek (*i.e.* equilateral) cross been adhered to, the faults of the great temple would have been avoided. He continued to labour

till the last, making an allegorical sketch of an old man, with the words *ancora impara* ("still learning"), and died at Rome, 1564, in his 89th year. He was buried with great pomp in Santa Croce, at Florence.

Michael Angelo, the greatest genius in art of modern ages, was more sculptor and architect than painter. As a man he was haughty, inflexible, independent, frugal, high-minded, generous, pure, and true. He was eminent as a poet, and his sonnets would place him in the foremost rank of the lyrical poets of his age. No painter has infused poetry into his productions in so definite a way and of so high an order. He has been well called the "Dante of art." He was never married, but his love for Vittoria Colonna, Marchioness of Pescara, 1534-1547 (*ætat.* 59-72), is one of the most famous of soul-unions in history, and has called out from him some exquisite poetry. Endless are the anecdotes recorded of the caustic wit, the proud reserve, and the pathetic earnestness of the master's spirit. In nobility of character, in sublimity of imagination, and in stupendous achievements, Michael Angelo may rank with the greatest sons of Humanity, and if he be placed in the calendar below Raphael, it is inasmuch as he does not equally represent the art of painting, that his effect on his immediate contemporaries was disastrous, and his influence on after ages less widely extended.

[F. H.]

See under LEONARDO. Portrait by V. Campi, F.

PAUL VERONESE (*Paolo Cagliari*), b. 1528, d. 1588.

Paolo CAGLIARI, of Verona, was the son of Gabriele Cagliari, a stonecarver, under whom he first studied, and afterwards under his uncle, Antonio Badile, a painter. After working in Verona, Mantua, and the district, he proceeded to Venice (*ætat.* 27), where he studied the works of Titian and Tintoretto, and soon became one of the most popular of the Venetian masters. He passed the rest of his life in Venice, surrounded by pupils, and greatly esteemed by the magistrates and nobles of the Republic, then in its utmost splendour. He died at the age of 60, in 1588, in the same year as Tintoretto, the year of the Armada, the year which closed the era of the great Italian masters. As a man he was amiable, generous, liberal, and extremely pious, though his pictures are without a trace of devotional feeling or even of conventional decorum. Veronese is one of the greatest colourists even of the great Venetian School of colour. And by the richness of his imagination, his mastery of hand, and the harmony and grace which he flung over every scene he touched, he is one of the most popular and delightful of painters—among painters what Tasso is among poets. He is entirely without depth of feeling or of thought, is often simply sensuous, naively incongruous, and extravagantly luxurious. He may be compared to Rubens, except that he is never sensual, coarse, or

ungraceful. He has left us a multitude of vast canvases crowded with splendid scenes, which in the midst of luxury and pomp, display a noble sense of life and a generous sympathy with every form of nature, animal, human, physical—all touched with inimitable truth and joyousness. [F. H.]

See under LEONARDO. Paul Veronese is buried in the Church of San Sebastiano at Venice. Portrait by himself, F.

HOLBEIN (*Hans*), b. 1497, d. 1543.

Hans HOLBEIN, son of a painter of the same name, was born at Augsburg, and settled early in life at Basle on the Rhine, where are many of his earlier works. In 1526, nearly 30 years of age, he came to England with letters from Erasmus to Sir Thomas More. He returned to Basle, 1528-1532, but in the latter year he settled finally in England, where he spent the last eleven years of his life. He painted here an immense series of portraits, and for the last seven years of his life was court painter to Henry VIII., with whom he was in high favour. He died of the plague in 1543. His portraits, which are mostly finished with the most exquisite care and patience, are amongst the finest and most faithful known. His *Madonna*, at Darmstadt (and also a replica at Dresden), a votive composition for the Meyer family, is one of the great religious pictures of the world. He was also a prolific engraver on wood, the *Dance of Death* being one of the most popular and characteristic products of the Reformation. He was also a fresco-painter, a designer in metal-work and in glass-painting, and like the great Italians, whose contemporary he was, he occupied himself with almost every phase of artistic production. It is now usually acknowledged that Albert Dürer, of Nuremberg, is the greatest mind that Germany produced in art ; but the rarity of his works out of Germany and the mystical originality of his genius necessarily limit his general influence. In the same way Raphael, by virtue of his vast popular influence, comes before Leonardo and Michael Angelo, men of even greater mental power. [F. H.]

See under LEONARDO. According to tradition, Holbein is buried in the Church of St. Katherine Cree, London. Portrait, min. by himself, W.

REMBRANDT (*Rembrandt Hermanszoon van Rhyn*), b. 1606, d. 1669.

REMBRANDT was the sixth son of a well-to-do miller of Leyden, where he was born in 1606 or 1607. He was educated in the University of Leyden, and received his first lessons in art there, and at Amsterdam and Haarlem. At the age of 24 he settled in Amsterdam, 1630, and began an independent career as a painter, never leaving that city until his death, 39 years later. With his first wife, Saskia van Uilenberg, he received a considerable fortune, lived with her happily for eight years till her death in 1642, and formed a fine

and valuable collection of Italian pictures, engravings, marbles, armour, and works of art. He exhausted his fortune, which at one time was 40,000 florins, became bankrupt in 1656, the date of his second marriage, and passed the last thirteen years of his life in distress, neglect, and severe work. He died in 1669, at the age of 63, and was buried at Amsterdam at the public expense. In the National Gallery are two portraits of himself, at the age of 30 and of 60.

Rembrandt was the chief of the Dutch School, and in certain qualities, especially in *chiaroscuro*—the contrasts of light and shade—has no equal in the range of art. His sombre, powerful, and dreamy spirit is expressed in his works, which, though without spiritual beauty, or elevation of thought, are full of pathos, mystery, sympathy, and profound imagination. His portraits, in reality and power, stand in the first rank and have rarely been equalled. His engravings and etchings have no equal in any school. His force and originality, his industry and technical mastery, place him amongst the greatest masters. [F. H.]

See under LEONARDO. Rembrandt is buried in the Wester Kerk, Amsterdam.

POUSSIN (*Nicolas*), b. 1594, d. 1665.

Nicolas POUSSIN, the leading master of the French Historical School, was born in Normandy of a poor family, 1594, and at the age of 18 went to Paris. Here he studied art, and imbibed a strong passion for the antique. At length he was able to reach Rome in 1624, and devoted himself eagerly to the study of ancient antiquities and of the great Italian masters. Cardinal Barberini became his patron, and in 1640 he was introduced by Richelieu to Louis XIII., who made him his painter-in-ordinary, with a salary and rooms in the Tuileries. Three years later he returned to Rome, where he continued to work until his death there in 1655. He is buried in S. Lorenzo, and his house in the Pincian is still shown.

Poussin was saturated with the forms and spirit of antiquity. He has been called "the learned Poussin," "the Raphael of France." His realisation of ancient life is intense and true, and his mental grasp of a high order. He transmitted to the whole French School the classical and Raphaelesque method of composition; but it too often degenerates into mere Academicism, and as a painter and especially as a colourist, he cannot be named beside the great masters of Italy, Spain, or the Netherlands.

The purpose of the Calendar is to commemorate those who guided distinct movements in civilisation, and thus the Historical School of France is represented by Poussin and Lesueur, inferior as both are to so many other masters. [F. H.]

Sir Joshua Reynolds: *Discourses*. C. H. Caffin: *The Story of French Painting* (1911). Portrait by himself, L.

LE SUEUR (*Eustache*), **b. 1616, d. 1655.**

Eustache LE SUEUR was born in Paris in 1616, and studied under Vouet. He devoted himself mainly to sacred subjects in the Raphaelesque manner, and was greatly admired by his contemporaries in France. His works are very seldom found out of his native country. He carried on the traditions of the great Italian masters with commendable industry and good taste. But he has no commanding gifts of his own, and as a painter he cannot rank amongst the masters who are immortal. He died in 1655, at the age of 39. [F. H.]

See under POUSSIN. Le Sueur is buried in S. Etienne du Mont, Paris.

VELAZQUEZ (*Diego de Silva y Velazquez*), **b. 1599, d. 1660.**

The greatest of Spanish painters was born in Seville, 1599, the son of parents of good family: his father's family name being de Silva, his mother's VELAZQUEZ. According to Spanish custom he bore both names, and is known in the history of art by his mother's name, like Gutenberg.

Up to the age of 23 he worked at Seville, where he met Cervantes, but in 1622 he went to Madrid, was introduced at court, and painted his first portrait of Philip IV. in the following year. From this time till his death, nearly forty years later, Velazquez was loaded with favours and honours by the king, whose intimate friend and companion he became, painting him, his family, and courtiers in countless attitudes. In 1630 he went to Italy, where he was received with continual honours; and there his portrait of Pope Innocent X. was carried in triumphal procession. In his duties as Royal Quarter-Master he accompanied Philip IV. in all his excursions and progresses. A fever caught in one of these, on occasion of the marriage of Louis XIV., carried him off in 1660 at the age of 61. The life of Velazquez, which was entirely passed in courts and in an accumulation of dignities and favours, was honourable, pure, and generous. He was dignified, courteous, and great-hearted, as is shown by his zealously befriending the poor Murillo, who surpassed him in popularity. He was buried with great pomp in Madrid, and lies beside his wife, who died of a broken heart within seven days after him.

Velazquez is one of the greatest masters of colour, of *chiaroscuro*, and of all the resources of the painter's art. He was alike successful in portraits, landscapes, animals, and historical scenes. As a portrait painter, in truth of local colouring, in facile realisation of every fact in nature, he has hardly any equal in any school or age. Though always noble, simple, and powerful in his conceptions, he has left nothing ideal, ecstatic, or in the slightest degree touched either by the *bravura* style of his friend and contemporary Rubens, or by the grandiose school of Raphael and Michael Angelo, which

he studied in Italy. Velazquez remains one of the most direct, true, and self-contained of painters, and is justly placed at the head of the Spanish school. He was born in the same year as Oliver Cromwell, and died two years later. [F. H.]

A. F. Calvert and C. G. Hartley : *Velasquez* (1908). C. H. Caffin : *The Story of Spanish Painting* (1910). Portrait by himself, Rome and F.

MURILLO (*Bartholomé Estéban*), b. 1618, d. 1682.

MURILLO was born of humble parents in Seville in 1618 ; and in his early years painted conventional Madonnas for fairs and for the export trade, receiving instruction from his uncle, Castillo, a painter. In 1640, at the age of 22, he was taken to Madrid and presented to Velazquez, then at the height of his fame. Velazquez introduced him at court, procured him commissions, and greatly assisted him. Murillo married a lady of fortune, and became an influential personage ; on the death of Velazquez in 1660, he was recognised as the first painter of Spain, and founded the Spanish Academy. He lived an industrious, pious, and happy life, and died in 1682, at the age of 64, from a fall from a scaffold in the Church of the Capucins at Cadiz.

Murillo is the last of the intensely devotional painters, a succession which had continued from Fra Angelico for some three centuries. His life was that of an ardent Catholic, and his works have the mystical and passionate character of Spanish devotion. The union in his mind of deep sympathy with the poor, along with an ecstatic devotional ardour, has made him the most popular of painters with all Spaniards and with most Christians. His naïve goodness and a somewhat sentimental sweetness have given him, in spite of his want of true nobility and power, a singular influence in different countries having various forms of belief. He is the Fénelon of painting, and is interesting as being far the latest of the "old masters," and far the latest of the devotional artists. His death occurred only twelve years before the birth of Voltaire. [F. H.]

N. Sentenach y Cabañas : *The Painters of the School of Seville* (Eng. trans.). Murillo was buried in the Church of Santa Cruz at Seville. The Church no longer exists, but the site is marked by a monument. Two portraits by himself, F.

TENIERS (*David Teniers, the younger*), b. 1610, d. 1694(?).

David TENIERS, the son of a painter of the same name, was born at Antwerp, where he studied under his father, a pupil of Rubens and the creator of the school of rustic life. He was personally a man of refinement, the friend of courtiers and princes, and was honoured by the Archduke Leopold-William, Queen Christina of Sweden, and Philip IV. of Spain. His technical execution is,

within its own limits, perfect, and his mastery of his own resources unfailing. No painter has ever surpassed him in *genre* subjects, *i.e.* the faithful rendering of commonplace incidents in everyday life. Of this branch of art Teniers is the chief, and, indeed, the main founder. Such painting exactly answers to the modern novel of ordinary existence. The subject is one of extreme limitation, and Teniers' conception of it is essentially vulgar in its spirit. The simple incidents which he chose are almost all of rough humour and coarse enjoyment by uncouth boors. It was deliberate in choice, for Teniers was himself refined in person and lived with splendid surroundings. Yet he invariably paints the rude horse-play of clowns and often the sensual riots of intemperance. In spite of his tendency to coarseness and the deliberate abandonment of all high ideals and traditional sanctities, Comte chose Teniers to represent the Flemish School even above the courtly and splendid Rubens, evidently regarding Teniers as having an inexhaustible interest in the life of the people, and as the founder of a school which saw pictorial life and colour even in the coarser strata of human social existence. Teniers is the first artist who devoted a long life of intense study to depict the people as they are. [F. H.]

See under LEONARDO. Teniers is buried in the Church of St. Jacques sur Caudenberg, Brussels. Portrait in his picture of his Chateau at Perck, N.G.

RUBENS (*Peter Paul*), b. 1577, d. 1640.

Peter Paul RUBENS, the son of Dr. John Rubens, Secretary to Anne of Saxony, wife of William the Silent, was born on the festival of St. Peter and St. Paul, 29th June 1577, at Siegen, in Westphalia, where his father was confined as a prisoner in consequence of his relations with the Princess. At the age of 11, his mother took the boy to Antwerp, where he began to study painting. In 1600, at the age of 23, he travelled to Italy, where he was employed on a mission to the Court of Spain. He spent some eight years in Italy; and in 1608, at the age of 31, he took up his residence in Antwerp, where he lived and died, in the house which still stands in the street named after him. He was twice married, at the age of 32 and 53. His second wife was Helena Fourment, then a beautiful girl of sixteen, whose portrait appears in so many of his pictures.

Besides being a painter, Rubens was *persona grata* at the courts of the Archduke and Infanta, of Marie de Medici, of Philip IV., and our Charles I.; and he brought to conclusion the treaty of peace between the three countries in 1629. He was frequently employed as ambassador. He was a good scholar, master of many languages, amassed a large fortune, and lived a princely life. He was honourable, courteous, gentle, affectionate, and temperate. His industry was unbounded. No painter, except perhaps Raphael, ever sur-

passed him in productiveness. He is said to have left between 2000 and 3000 works, more than one in every week of his working life. Most of these were produced, like Raphael's, by the aid of a school of pupils.

The distinctive character of Rubens as a painter is the immense range of his powers. He is the Ariosto of Painting. He was alike successful in religious subjects (*The Descent from the Cross*, Antwerp Cathedral), in court scenes, in portrait, and in landscape. He is one of the great colourists having an inimitable mastery of hand, a rich imagination, and unfailing power of grasp. Wanting wholly in delicacy and in depth of soul, Rubens is one of the most individual of all painters, by virtue of the superb glow which he delights to throw over every aspect of existence—human, animal, or physical—so much that the great authorities have spoken of him as the greatest master of the technical resources of his art that ever lived. His landscapes are amongst the earliest pure landscapes without figures known. If Comte placed Rubens below Teniers, the reason must be sought in this—that he thought the idealisation of peasants' life more important (and more original) than the idealisation of court life. [F. H.]

See under LEONARDO. Rubens is buried in the Church of St. Jacques, Antwerp. Portrait by himself, F.

RAPHAEL (*Raffaello Santi, or Sanzio*), **b. 1483, d. 1520.**

RAFFAELLO SANTI was the son of Giovanni Santi (in Latin Sanctius, Italianised into Sanzio), a poet and painter of Urbino, in central Italy. He was born there 6th April 1483, his mother's name being Magia Ciarla; and he died at Rome on his birthday, Good Friday, 1520, aged exactly 37. His artistic career of which we have remaining pieces extends over some twenty years (1500-1520), and during this period he executed an enormous series of works, occupied himself with an amazing variety of artistic labours, and exerted a paramount influence over all subsequent art. This artistic career of twenty years is usually divided into three periods, which correspond with his three styles, and the three schools in which he successively lived. The first is that of Perugia, down to 1504; the second that of Florence, 1504-1508; the third that of Rome, 1508-1520. The third of these periods is much the longest, covering twelve years; it involves the greatest break in his artistic career, and is far the richest both in productions and influence on mankind. Ruskin dates the secularisation of Italian art from Raphael's visit to Rome in 1508.

Raphael was instructed in Urbino by his father in his early years, and by Timoteo Viti; but soon after the death of his father was placed, about his twelfth year, in the school of Pietro Perugino in Perugia. Here he adapted and carried to its highest point the tender

grace and mystical devotion of that master, often surpassing him in beauty, simplicity, and charm. Of this period, only a few Madonnas and some other subjects remain, one of which, the *Vision of a Knight*, in the National Gallery, is one of the earliest known Raphaels, probably painted before 1500. The greatest and most famous picture of this period is the *Sposalizio* in Milan (*The Marriage of the Virgin*), signed and dated 1504.

In 1504, Raphael, then 21, went to Florence, where the influence of Michael Angelo, of Leonardo da Vinci, and other great Florentines, exerted a most powerful effect on his mind. It was the moment of the famous contest in painting between Michael Angelo and Leonardo da Vinci. During this period of four years, his works remain almost entirely devotional in subject and in treatment ; but are much more free in execution and more spontaneous in conception. The most important are ; the *Ansidei Madonna* of the National Gallery, 1506, the *Madonna del Granduca* at Florence, 1504, the *Cardellino* and *Belle Jardinière*, 1507, the *Entombment* at Rome, and the *Saint Catherine*, 1507, in the National Gallery. The pictures of this period have some of the highest qualities of the master in their perfection, and are wholly free from the mannerisms, the pseudo-classicism, the academic facility, and want of earnestness which many critics attribute to his Roman manner.

In 1508, Raphael, then 25, was invited to Rome by Pope Julius II. to superintend the decorations of the Vatican. Michael Angelo had just shown his San Sistine frescoes. At Rome Raphael lived and worked during the twelve years of life that remained to him, producing an extraordinary number of works, and throwing his whole soul into a great variety of artistic labours. He at once conquered for himself the position of leading painter of his age, and the ultimate authority in all questions of art ; and he was the friend and companion of all that was most eminent and cultured in the Papal city. The susceptible and rich genius of the painter rapidly assimilated the whole of the classical enthusiasm, and the splendid many-sidedness of that brilliant society ; and from that time Raphael became one of the mighty spirits in the humanistic movement of the Renascence. His mind entered into all the learning of the age, and observed every phase of the world of beauty and intelligence with which it was crowded. Raphael became, at Rome, essentially a humanist, to whom every aspect of human life, of past history, and the whole world of ideas presented itself in an inexhaustible series of beautiful forms. To the sincere believers in historic Christianity much in this growth of the painter is a falling from grace. It was undoubtedly accompanied by much loss in intensity and simplicity. But from a Positive view of human history, it is on the whole a true and noble development from traditional mysticism into a wide and free humanity. The two views of Raphael's Roman manner have been excellently expressed by Mr. Ruskin on the one hand, and by Mr. Symonds on the other. And

it is impossible to doubt that Raphael still retained the noblest conception of the powers of religious art, when we remember that amongst his later works are the *Paul Preaching at Athens* and the *Madonna di San Sisto* (now in Dresden).

The works of the Roman period include *The Chambers of the Vatican*, an impressive series of frescoes on a grand scale, on which all the painter's resources of drawing, composition, learning, and science were lavished (1508-1513); the *Loggie of the Vatican*, another series of arabesque ornaments, with *Raphael's Bible*, a series of 52 frescoes of the Old and New Testament; and, lastly, *The Cartoons for the Tapestries* (1513-14). These consist of eleven designs on paper in distemper, afterwards executed in tapestry at Arras. Of these cartoons, seven are at South Kensington Museum. There were also an immense number of frescoes of sacred and classical subjects at Rome, the *Spasimo* (*Christ bearing his Cross*) at Madrid, and the *Transfiguration*, his last work, 1520. The painter died of a fever on 6th April 1520, Good Friday, having completed his 37th year, and was buried with great pomp in the Pantheon at Rome, where his remains were found in 1833 in perfect preservation. At Rome, Raphael had an immense studio of pupils; often forty or fifty painters were engaged under him. Few of his larger works were completed without their assistance; many were simply from his designs. The productions of his genius are incredible in number: some 120 Madonnas, about eighty portraits, nearly 200 other easel pictures, nearly 600 studies and drawings, besides upwards of 100 compositions for mural paintings. Besides this, Raphael left works of sculpture of much grace, gave designs for several buildings, was the master architect of St. Peter's at Rome, and superintended the excavations of antiquities. Some of his most elaborate designs exist only in the shape of drawings, or the engravings of Marc Antonio.

His character was pure, gentle, generous, courteous, and modest. He was beloved, it is said, not only by all men, but by the very brutes. Artists flocked to him from all parts of Europe; princes and cardinals sought his friendship; Cardinal Bibbiena offered him his niece in marriage, and the Pope seriously contemplated raising him to the Sacred College. The influence of Leonardo and Michael Angelo, both men of even greater mental power, the profound corruption and neo-classical mania of the Papal Court, had undoubtedly a weakening influence over the plastic genius of Raphael. And the attempt to unite dramatic passion and abstract ideas with absolute grace of form and symmetry of composition, not seldom ended in unreality and mannerism. It was certainly ruinous to all his imitators, and has laid the foundation of many abortive schools. But the inexhaustible sense of beauty, the amazing fertility of invention, the vast range and the consummate mastery of his resources, make Raphael, by the common consent of the trained and the untrained world, the prince of painters. His *Madonnas*

and his *Cartoons* are at once the most popular and the most noble products of modern art. [F. H.]

Life, by J. D. Passavant; by E. Müntz; by Professor J. H. Middleton in *Encycl. Brit.*; and see under LEONARDO. Portrait by himself, L. All the painters in this week are well represented either in the Louvre at Paris or in the National Gallery, London, and most of them in both.

FROISSART (*Jean*), b. 1337, d. abt. 1410.

The week devoted to the romance of Chivalry opens with the courtly chronicler of knights and dames of the 14th century, and is continued down to the modern romances of Scott and of Manzoni, who is remembered by living men.

Jean FROISSART, the son of a painter of armorial bearings, was born at Valenciennes, then a Flemish town, in 1337. After a desultory youth, given up to verse-making, love-making, and pleasure, the young poet started for England with recommendations from royal and noble persons to Philippa of Hainault. The good queen of Edward III. remained his firm friend and protectress during the rest of her life. With her help, and afterwards that of a long series of lordly patrons, Froissart started on those indefatigable journeys over Western Europe, wherein he gathered up his vast stores of information—journeys which more or less occupied forty years of his life. The list of them would be tedious: suffice to say that they embraced England, west, north, and south,—Scotland, to the Highlands,—France, from Calais to the Pyrenees, from Brittany to Avignon—then the seat of the Papacy—Lombardy, Rome, and many parts of Italy. In all of these, high recommendations and his brilliant gifts opened to him the courts of sovereigns, princes, and nobles; so that he lived almost entirely as the companion of lords, knights, and ladies. He knew Chaucer, and seems to have met Petrarch. His insatiable curiosity, a wonderful memory, and consummate skill of address enabled him to collect tales of chivalry from knight, squire, dame, and damsel in every hall and at every pageant.

About the age of 36, under the patronage of Guy, Count of Blois and Lord of Beaumont, near to which town the gay rhymester was now parish priest, Froissart began to compose his famous chronicle of knightly deeds in peace and war. He first re-wrote the chronicle of Jean Le Bel; but he soon commenced the chronicle of his own, which he continued for some twenty-five years. The book opens with the death of Edward II. of England, and the coronation of Edward III., 1327; and it ends with the coronation of Henry IV., and the election of the Emperor, in 1400. Down to the battle of Poitiers (1356), the tales which fill the first half of book i. were necessarily related from tradition. But from this date (ch. 160, bk. i.) Froissart, who was then nineteen, could rely on his own memory and the statements of eye-witnesses. The latter half

of book i. and the whole of the other three books are strictly contemporary memoirs, the result of personal knowledge or oral inquiry. In later life the courtly chaplain of the Lord of Beaumont was appointed canon and treasurer of Chimay, in Hainault; and there he died in ripe old age about 1410.

Froissart was the most indefatigable of questioners, and had the art of making every man or woman tell him whatever they had seen. War, sieges, pageants, tournaments, and deeds of chivalry are to him the sole end of existence; and all men and women, of whatever nation or tongue, interest him equally, provided they be noble, gallant, and of courtly life. He is the earliest, the very prince, of what we now call war correspondents or graphic reporters. But with all his passion for the picturesque, and his worship of high rank, he is at bottom neither toady nor journalist. The chivalrous deeds of the well-born were to him both social religion and high poetry. He has been called by Gray "the Herodotus of a barbarous age," and by Hallam "the Livy of France." But he was neither historian nor philosopher. He is not placed in this Calendar beside Philippe de Comines and Guicciardini, nor with Montesquieu and Gibbon, but with the romance poets of Chivalry. We ask from him pictures of manners, not records of events, a stage crowded with pageants, not profound judgment of character. In his exordium he describes his aim: "That the honourable enterprises, noble adventures, and deeds of arms, performed in the wars between England and France, may be properly related and held in perpetual remembrance—to the end that brave men taking example from them may be encouraged in their well-doing, I sit down to record a history deserving great praise."

Viewed as mere picturesque romance of manners, the chronicle of Froissart is one of the most vivid and complete in all literature. It gives us a consummate tableau of one side of the Mediæval world; but it is seen only in its corruption and decay. When we compare Froissart with Joinville, who wrote nearly a century earlier, we see how completely in that interval all but the traditions and prejudices of Catholic Feudalism has died out. From St. Louis to Richard II. is a profound descent. But, as usual, the idealisation of a complex type of manners is seldom possible until the mode of life is disappearing as a living reality. Froissart is sublimely unconscious of the rottenness and inhumanity of the effete social system he glorifies. He gives us only the glow of its late autumn. And Scott, with singular art, has put this into the mouth of Claverhouse—a hero after Froissart's own heart—"With what true chivalrous feeling he confines beautiful expressions of sorrow to the death of the gallant and high-bred knight, of whom it was a pity to see the fall, such was his loyalty to his king, pure faith to his religion, hardihood towards his enemy, and fidelity to his lady-love! Ah, benedicite! how he will mourn over the fall of such a pearl of knighthood, be it on the side he happens to favour, or on the other. But,

truly, for sweeping from the face of the earth some few hundreds of villain churls, who are born but to plough it, the high-born and inquisitive historian has marvellous little sympathy." [F. H.]

The *Chronicles* of Froissart have been published in many forms, from very different but authentic manuscripts, by Buchon, etc., the edition of Kervyn de Lettenhove, Brussels, being the most complete. Eng. trans. by T. Johnes, 2 vols., illustrated, 1844. C. A. Sainte-Beuve: *Causeries du Lundi*, ix. Froissart was buried at Chimay.

JOINVILLE (*Jean, Sire de Joinville*), b. 1222, d. 1317.

The biographer of St. Louis, one truly worthy of such a hero, was born in 1222, in his ancestral castle of Joinville on the Marne, in Champagne. Jean de JOINVILLE belonged to one of the most illustrious families of Champagne, of which he was hereditary Seneschal, being direct descendant of Godfrey de Bouillon, allied to the counts of Poitiers, Burgundy, and Blois, through his mother, a cousin of the Emperor Frederick II.

Joinville was brought up at the refined court of the Counts of Champagne, and as a youth was attached to the person of St. Louis, whose majority dates from 1236, when Joinville was but fourteen. He began his military career at the earliest age, and in 1248, being still only twenty-six, he left his young wife and infant son, heavily mortgaged his lands, and set out with St. Louis in his disastrous crusade to Egypt. The six years of voyages, battles, and captivity, his sufferings, wounds, maladies, and terrible experiences, his hopes, fears, and prayers, are vividly told in his *Life* of the royal saint. On his return (he was now thirty-two), he vigorously set himself to restore the shattered fortunes of his paternal fiefs. He still spent much time in the service of St. Louis; but when the King resolved on his second fatal Crusade, 1270, Joinville positively resisted all entreaties to join him: alleging, as was most true, the permanent injury which the first crusade had inflicted on his own vassals and tenants.

During the reigns of Philip III. and Philip IV. (*Le Bel*) Joinville was occasionally employed, but towards the last was constantly in opposition. His immortal *History of St. Louis* was undertaken at the desire of Jeanne of Navarre, mother of Louis X. (*Le Hutin*), 50 years after the events it narrates, when the author was himself eighty-two years old. It was finished in 1309, when the old warrior was no less than eighty-seven, and presented by him to King Louis X. The venerable crusader, in arms to the last, lived to the age of 95, and died in 1317, being perhaps the most striking instance of long life in any soldier of the Middle Ages, and one of the most singular examples of tardy literary activity in all modern history.

Joinville is the second of the great French chroniclers, just a century later than Villehardouin, and a century earlier than Froissart. Though he has little of the glowing imagination of Froissart, or of

the piercing judgment of De Comines, Joinville has left us a wonderful picture of Catholic Feudalism in its last sublime hours. His portrait of the royal saint takes us to the very heart of the Middle Ages in the supreme moment of their evanescent glory. His memoirs, written almost exactly in the same year as the great poem of Dante, but recording events long before Dante's birth, show at every step the collapse of Catholic Feudalism as a permanent institution. Every page deepens the contrast between the ecstatic unworldliness of the saintly king and the sane good sense of his devoted knight, between the passionate traditions of the Crusades and the practical inhumanities and follies they involved. Historical literature has no more deeply impressive scenes than those of the King sitting in judgment under the oak of Vincennes, of his conversation at court, the battles at Damietta, the voyages and storms at sea, and above all the martyr's death of St. Louis at Tunis. In all his adventures we see the knight of Joinville simple, stalwart, chivalrous, *naif*, devoted, and sane. [F. H.]

Vie de St. Louis, éd. de Wailly, 1874. Eng. trans., and abridged by James Hutton. C. A. Sainte-Beuve : *Causeries du Lundi*, viii. Buried at Joinville.

CAMOËNS (*Luiz Vaz de Camões*) b. 1524, d. 1580.

The national poet of Portugal was born apparently at Lisbon, in 1524, of a noble family, being by his mother's side related to Vasco da Gama, the hero of his epic poem, who died in the year of the poet's birth. The young Luiz de CAMOENS was educated at Coimbra, and introduced at court, where his poetry, his loves, and his audacity soon made him a man of mark. Banished from court, and finding no settled vocation, the ambitious youth went abroad, served against the Moors in Africa, where he lost his right eye, and, after a wild youth, sailed for the Indies at the age of 29, bursting with ideas, and proudly indignant that his genius had not been recognised.

For seventeen years the poet lived in India, serving in arms on sea and land, in storms on the ocean, in war with the Moors, Arabs, and the native tribes of the Asiatic coasts. After many vicissitudes and disappointments, wherein his proud and generous nature was constantly displayed, Camoëns returned to Lisbon in 1570, bringing with him his poem *Os Lusiadas*, the national epic of Lusitania. It was published in 1572 (*ætat.* 48), and at once was hailed as the greatest poem of its time. But the poet himself was neglected. He died in 1580, at the age of 56, in poverty and obscurity, just before the sixty years' domination of Portugal by Spain. "I am happy," said the patriot poet, "in that I die in the bosom of my country—nay, in that I am dying with her."

We need not accept the extravagant praises with which from that day to this the Portuguese have covered their national poet.

He fixed their language, and he idealised their national glories. His *Lusiadas* is rather earlier in date than the *Jerusalem* of Tasso, or the *Fairy Queen* of Spenser: it is the earliest modern type of a regular epic on the model of the *Æneid* and the *Pharsalia*. It is moreover a truly national epic, devoted to the great achievement of the Portuguese, the discovery of the Cape and Southern Africa by Vasco da Gama, and his settlement in India. This was only seventy-four years before the publication of the poem; and the plan of an epic describing events so recent was necessarily fatal to the epic ideal; and the incongruity is made more striking by the mixture of elaborate geographical details with a celestial machinery taken from the gods of Olympus and the entire classical mythology.

We can accept the verdict of Camoëns' countrymen for the grace of his language and the consummate purity of his style. In plan, imagery, and wealth of invention, the *Lusiads* is certainly inferior to the principal epics of European literature. But it continues to hold therein an honourable place by virtue of its heroic, martial, and patriotic spirit, the vivid pictures of sea life and of maritime adventure; and, in spite of its incoherences, it must ever remain one of the national romances of chivalry. [F. H.]

Hallam: *Literature of Europe*, vol. ii. M. Lemos: *Revue Occidentale*, vols. v. and vi., 1880-1. Translations by J. J. Aubertin, 1878, and by W. J. Mickle, 1771 (Bohn's Standard Library). Sir R. F. Burton: literal trans. in archaic rhyme; *His Life and his Lusiads*. G. Young: *Portugal: an Anthology*, pp. 80-97 (Six sonnets and a Canto of the Lusiads, text and Eng. verse trans.). The remains of Camoëns now rest at Belem, near Lisbon.

SPENSER (*Edmund*), b. 1552, d. 1599.

The roll of the modern poetry of England opens with the romantic poem which glorified the era of Elizabeth. The poet's short life of 47 years very nearly coincides with her reign.

Edmund SPENSER was born in London, in 1552, of a decayed family, probably allied to the noble house of Spencer. He was educated at Merchant Taylors' School and at Pembroke Hall, Cambridge. Returning to London in early life, he became the friend of Sidney, was taken into the household of Lord Leicester, Sidney's uncle, and published his first poem about the age of 27. The next year he went to Ireland as secretary to the Viceroy, Lord Grey, and passed there nearly all the rest of his life in official duties. He obtained a grant of confiscated estates, and was one of the Protestant English garrison who, amidst scenes of blood and horror, valiantly strove to master the Catholic population of the island. In the insurrection of Tyrone, Spenser's home was stormed and burnt; he made his escape to England, died in distress (it is said of want), in January 1599, a few months before the birth of Oliver Cromwell, and was buried in Poet's Corner, near his beloved Chaucer.

The *Fairy Queen* was published in two series in 1590 and 1596, and at once placed its author as the first of living poets. It is still

usual to rank it in English literature next after the *Paradise Lost*, though it cannot be denied that in power, in design, in vitality, and in directness, Spenser falls immeasurably short of his greatest successors. But he is the earliest of our "modern" poets on a large scale, and his influence on all subsequent poetry has been profound. In exquisite harmony, in wealth of fancy, richness of local colour, purity of tone, and in glowing enthusiasm for all that is lovely, chivalrous, and noble, Spenser may take rank with Tasso, and is only surpassed in our language by Shakespeare. Even prolixity, confusion of plan, obscurity, affectation, and often languor, do not destroy the charm of this noble and exquisite creation, with all its romantic dignity of aim and its visions of knightly and womanly perfection. It has been well said by Thomas Campbell :— "He threw the soul of harmony into our verse, and made it more warmly, tenderly, and magnificently descriptive than it ever was before, or, with a few exceptions, than it has ever been since."

[F. H.]

R. W. Church : *Spenser* (Eng. Men of Letters). *Camb. Hist. of Modern Lit.* iii. ch. ii. J. W. Mackail : *The Springs of Helicon*. *Works* (Globe series), by Morris and Hales. *Works*, by Grosart. *The Faerie Queen* (Everyman's Lib. 2 vols.). Portrait, Pembroke Coll., Camb.

SPANISH ROMANCERS, 12th to 15th centuries.

Under this name are included the popular ballads and romances of Old Spain, which sang the deeds of the national champions. No people of Europe have ever surpassed the mediæval Spaniards in rich and heroic romances, which are almost certainly traced back to the 12th century, and may have taken their actual form in the succeeding three centuries. They were first collected and *published* in 1510 under the title of *ancient*.

This is not the place to enter on the obscure and difficult question of the literary history of these "romances," which has been treated by Ticknor (*Hist. of Spanish Literature*), Dozy, Depping, and Hubbard. It is sufficiently clear that a rich and heroic ballad poetry existed in some form in Spain from a time not remote from that of the champions it honours. In the *General Chronicle* of the 13th century this is often referred to as the work of *Joglares*. These minstrels were of a kind very different from the Provençal *Troubadours*, placed in the week of Ariosto above ; for war, heroism, crimes, passion, and tragedy are their subject rather than love and enjoyment. They form a real national epic cycle, not surpassed by any other in modern literature. The principal ballads of various ages cluster round the deeds of the Cid—the Arthur and Roland of Old Spain ; and the finest of all is the *Poem of the Cid* (see under CID, *Feudal Civilisation*)—a long and true epic rather than ballad, and worthy to take rank with the early epics of the world. For splendid pictures of chivalry the Spanish romances have no superior, unless

it be in our own Arthurian cycle, as the chivalry of Spain, in its long contest with the Moors, from the opening of the 11th to the closing of the 13th century, had no superior in Europe. [F. H.]

J. G. Lockhart: *Spanish Ballads*,—R. Southey: *Chronicle of the Cid*,—are published in one volume. G. Ticknor: *Hist. of Spanish Lit.* A selection of the Spanish Romances including the Cid (ed. by J. S. Florez) is included in the Positivist Library.

CHATEAUBRIAND (*François Auguste de*), b. 1768, d. 1848.

CHATEAUBRIAND, the Byron—perhaps we should say the Manzoni—of modern France, was of a noble Breton family, and was born at St. Malo, in 1768, one year before Napoleon and three years before Scott. After a desultory and dreamy youth, passed in all the romantic associations of his Breton sea-coast, he entered the army, was received at court in the last days of the Monarchy, witnessed the opening scenes of the Revolution at Paris, and, disgusted by the outrages he saw, journeyed to America. There he was welcomed by Washington, travelled amongst the Red Indians, and returned to Europe, after the flight of the King, to join the *Emigrés* on the Rhine. Wounded, sick, and penniless, the exile passed years of extreme distress in England, where the death of his mother and sister filled him with remorse and converted him to Christianity.

Here he began his *Génie du Christianisme*, which appeared in 1802, when the author had already returned to France. *Atala*, published in the year before, had already given him reputation. The *Génie* created a new literature, and raised the young writer to fame and influence. The reaction had found its Rousseau—a Rousseau, it is true, with more rhetoric than poetry, and more sentiment than passion, but a romantic enthusiast gifted with eloquence, pathos, personality, and convictions, a rich imagination and a superb disdain for the materialism and Jacobinism which were still burning out in France their last fires beneath the retrograde ascendency of Bonaparte.

Châteaubriand, now haughtily conceiving himself a new force in the world, formed the plan of his *Martyrs*, wherein the heroes of the Christian faith were to be contrasted with the vices of Polytheism. With all its confusion of plan and historical anachronisms, the *Martyrs* had a powerful effect in reviving the hold of the lately proscribed religion; and it forms the poetic side of the Catholic revival, of which De Maistre was the philosophic inspirer. It appeared in 1809, on the poet's return from his travels in Greece, Palestine, Asia Minor, Africa, and Spain.

Châteaubriand was employed in diplomacy both by Napoleon and under the Restoration, and was Ambassador at Berlin and in London. But his intractable character and his visionary ideas aced him almost uniformly in opposition; and his political career

and writings have a quite subordinate place. His last days were passed in the Rue de Sèvres in profound seclusion, and he died there at the age of 80, July 1848, having lived to see the barricades of February and June in the second Republic. He is buried at St. Malo, his birthplace, in a romantic tomb on the rocks swept by the billows of the Atlantic.

Châteaubriand occupies in France a peculiar position of his own as the first to revive that passion for the chivalric and Catholic traditions of the past which in England was so gloriously developed by Scott. The life of Scott lies within that of Châteaubriand; but the romances of Scott are from twelve to twenty years later. If the *Genius of Christianity* is feeble as philosophy, the *Last of the Abencerrages* is a beautiful little specimen of true historical romance. The *Martyrs*, with all its faults of construction and reality, is a powerful picture of religious heroism, and its faults are more conspicuous to-day than they were under the Empire of Napoleon and to the English Protestant rather than to the French Catholic. Both of these books are in the Positivist Library, beside *Paul and Virginia* and the *Princess of Cleves*. Châteaubriand, with all his egoism and his sciolism, played much the same part in French literature that is filled in English literature by Byron, Coleridge, and Southey, and from afar off he even touches on the part of Scott. So that, historically, he must be held to have drawn back the 19th century at its opening to the inexhaustible fountains of chivalrous romance. [F. H.]

Mémoires d'outre Tombe. C. A. Sainte-Beuve: *Châteaubriand et son groupe*, 2 vols.

WALTER SCOTT (*Sir Walter*), b. 1771, d. 1832.

The great restorer of chivalrous romance in modern Europe came of a martial Border clan, the chiefs of which have founded in Scotland more than one noble house. Walter SCOTT was the ninth son of an Edinburgh solicitor, and was born in that city, August 1771. After a somewhat irregular education, the youth, already brimful of poetry, ballads, romances, and traditions of his warlike and loyal ancestors, was admitted as an advocate at the age of 21. He studied law with the same energy that he threw into all he took up, early obtained some small legal appointments, and ultimately that of Clerk of Session—an office which he filled with zeal and efficiency for twenty-five years.

It is clear that from early youth Scott's real bent was towards narrative romance. But his earlier publications were poems—*Border Minstrelsy* (1802), *Lay of the Last Minstrel* (1805), *Marmion* (1808), *Lady of the Lake* (1810)—which gave him a reputation only overshadowed by that of Byron a few years later. It was, however, not until the age of 43 that the great romancer unveiled his true genius.

Waverley had been begun nine years earlier; but it appeared anonymously in 1814; and from that date until *Castle Dangerous*, in 1831, Scott continued, without much intermission, to pour forth the magnificent series of historical romances, in number more than thirty, which are his true glory. Along with these he continued to issue poems, dramas, biographies, essays, critical editions of various kinds, and almost every form of literary product. Fired with the profits which such portentous literary fertility gave him, and with his judgment dazzled by the unparalleled popularity of his novels, Scott conceived the petty ambition of founding a territorial family and creating a baronial estate. He bought Abbotsford in 1812, and proceeded to construct there a *mesquin* imitation of antique mansion and park. He entered into partnership with publishers and printers, and engaged in many foolish speculations; he was made a baronet by the direct act of George IV.; he kept open house and lived the life of a county magnate. It is a sad and cruel story. Ruin, humiliation, bankruptcy, disease, and death followed in rapid series. For six years the poet struggled heroically to meet his disasters; out of £130,000 of debts he paid off £40,000 in two years of intense labour. His maladies grew more acute, his genius feebler, with every new effort. He died at the age of 61, utterly worn out by gigantic labours; and he was buried in the romantic ruins of Dryburgh Abbey, beside his beloved Tweed, September 1832.

It is one of the most melancholy thoughts in the history of our literature that this superb genius was prematurely sacrificed. For, with his splendid constitution and amazing fertility, the world might have possessed another series of romances from his brain not less inimitable than what we have. The historical field is practically limitless; and the imagination of the great romancer had an inexhaustible range, such as poets whose creations are less objective could not possibly maintain. The errors of this noble nature were inwoven with his whole conception of life. But at bottom the soul of Walter Scott was true, generous, warm, humane, and tender as any that ever spoke in immortal tones to men. Some of his happiest creations have not been surpassed in their own vein by Shakespeare himself; some of his truest scenes have Homeric simplicity and charm: his best tales have refashioned the historic judgment of our age. The form in which the mighty improvisatore pours out his story is too often flaccid, and at times it descends to conventional bombast. Scott was no accurate historian, and hardly a learned antiquary; and it may be that no one of his novels is a complete masterpiece of the best that he could do. *Don Quixote*, *Tom Jones*, even Manzoni's *The Betrothed* are all more finished works of literary craft; but the glory of the *Waverley* cycle is the Shakespearian wealth of imagination, the historic glow which lights up, one after another, eight centuries of the past, the unerring instinct by which, in all its essentials, the spirit of Chivalry is revealed to a sordid age.

These inexhaustible prose epics paint in everlasting hues the best types of Mediæval Chivalry and those late echoes of it which linger in the Northern hills. And Scott does this with a systematic completeness and a passionate enthusiasm which have not been reached by the greatest masters of the historical drama. The form and scheme of the prose romance are in many ways better fitted to idealise the complex spirit of a distant epoch than is the stage, whereon personal types must necessarily dominate over social pictures. Scott has thus found a new mission for creative art—an art whereof he has given us the tempting first-fruits, but which is destined to almost unlimited development and to the noblest uses when inspired by the religion of the future. And it is in this anticipation that Comte has called Scott the greatest poetical genius of the nineteenth century, and ranks him as one of the twelve great poets since Homer. [F. H.]

J. G. Lockhart : *Life of Scott*. 10 vols. R. H. Hutton : *Scott* (Eng. Men of Letters). Scott : *Diary and Journal*, 1891. *Pos. Pol.* iii. 527, iv. 136. *Phil. Pos.* vi. p. 367. Seven of Scott's novels were chosen by Comte for inclusion in the Positivist Library : *Ivanhoe, Waverley, The Fair Maid of Perth, A Legend of Montrose, Old Mortality, The Heart of Midlothian, The Antiquary. Quentin Durward*, at first included, was rejected in view of its unfairness to Louis XI., and *Waverley* substituted. Portrait by Raeburn ; by Allen, N.P.G. ; by Grant, S.P.G. ; busts by Chantrey, N.P.G. and S.P.G.

COOPER (*James Fenimore*), b. 1789, d. 1851.

Fenimore COOPER was born in New Jersey, soon afterwards moving with his father—a congressman and judge—to a wild district in the State of New York. As a youth he spent six years in the navy, saw some service, and then, devoting himself to literature, retired to a newly settled part of the States. He resided three years as Consul in France, and travelled over the greater part of Europe, met Walter Scott, and ultimately returned to his quiet life in his boyhood's home. His series of romances belong to the years 1821-50.

The great importance of his work lies in the stories of Indian life, of which the *Last of the Mohicans* (1826) is the chief. Cooper is the Walter Scott of the Fetichist races of the Red type ; and his singular merit has been to preserve in permanent imaginative form the social life of a primitive race in the hunter stage of development. Without admitting the literal faithfulness of much in his pictures, he must be recognised as having been the first and chief of those who have idealised an almost forgotten epoch of civilisation. He has thus done in a poetic form for one phase of Fetichist life what Captain Cook has done in a scientific form for another phase. And since each generation removes from our planet some of the last remnants of the primitive form of human society, the insight and sympathy of Cooper, like that of Cook, will continue to gain an increasing value by the course of time. This permanent service

to art will long preserve a writer who, except as a creator of vivid romantic incidents, must occupy an inferior place amongst the true masters of fiction. [F. H.]

J. Erskine : *Leading American Novelists* (1910). Cooper is buried at Cooperstown, N.Y. Portrait by Mirbel, W.

MANZONI (*Alessandro Francesco Tommaso Antonio*), **b. 1785, d. 1873.**

The founder of the romance of chivalry in modern Italy came of a noble but impoverished family, settled at Lecco, on the lake of Como. His mother was a daughter of Beccaria, the Bentham of Italy. Alessandro MANZONI was born at Milan in 1785 ; at the age of 20 he went to Paris, and was admitted into the intimacy of " ideologues " and Voltairians. A happy marriage, at the age of 23, and the counsels of friends, decided him to devote his energies to the defence of Catholic and moral aims. His *Hymns*, *Tragedies*, and *Essays* are of minor importance, always excepting his magnificent *Cinque Maggio*, an ode on the Death of Napoleon, 1821, one of the most powerful lyrics in Italian, or indeed in modern literature.

The whole interest, however, of Manzoni's life centres in *I Promessi Sposi*, published, after long study and revision, in parts, 1825-27. It is a historical romance, the scene of which is placed in the poet's native country, round Como and in Milan, during the Spanish rule, about 1630. It was at once received with acclamation both in Italy and throughout Europe, and has ever since stood, almost without a rival, at the head of the modern Italian prose romance. Scott, with generous enthusiasm, declared it to be the finest novel ever written. With the exception of a small supplement, *La Colonna Infame*, Manzoni produced nothing in the same vein, though he lived and wrote for more than forty years. His domestic life was spotless : though clouded continually by bereavement ; for he lived to bury his two wives and seven of his nine children. His character was noble, generous, affectionate, simple, and pure. He died in 1873, at the age of 88. Manzoni is one of the two or three names of living persons who were included in the Calendar (others were Wheatstone, Rossini, Blainville).

It is too common in England to regard the *Promessi Sposi* as a mere imitation of Scott. Undoubtedly it was subsequent to almost the whole of the series of the *Waverley* romances, and was a development of the historical idealisation in prose which Châteaubriand commenced and Scott so gloriously expanded. But the work of Manzoni has special qualities of his own. The patient elaboration of the scheme, the artful contrasts of light and shade, the consummate delicacy with which characters are portrayed, and the exquisite beauty of the language are those of a poem rather than a novel. And it is plain that Scott, in the abounding plenitude of his creative fancy, never gave to any single story the dramatic complexity and laborious care bestowed on Manzoni's *Betrothed*.

The plan, too, was purposely conceived in a key different from Scott's. Far less historical setting, less rapidity of incident, less of the epic and more of the dramatic element, were sought by Manzoni. Certain English readers have found him tedious because, whilst they are looking for thrilling situations, Manzoni is unfolding to them delicate shades of character. Nor does the English reader feel a ready sympathy with the more spiritual duties of the Catholic priest, and especially his relation to men and women of the labouring class. In intimate feeling for all this, Manzoni stands without a rival; and he is as admirable in giving it ideal form as is Scott with his covenanters, cavaliers, and Border yeomen. The roll of antique romance would indeed be incomplete without the figure of Don Abbondio and his flock, the Friar, the Cardinal, and all the late blossom of the Catholic Church—so incomprehensible to Northern Protestants. [F. H.]

C. A. Sainte-Beuve: *Essay on Fauriel*, in *Portraits Contemporains*, iv. *The Betrothed*: numerous English translations, and in Bohn's *Nov. Libr. Phil. Pos.* vi. p. 367, *Pol. Pol.* iii. 527. Manzoni is buried in the Cimitero Monumentale at Milan. The *Promessi Sposi* is in the Positivist Library.

TASSO (*Torquato*), b. 1544, d. 1595.

The third of the great poets of Italy holds the chief place in the week assigned to the romance of Chivalry. The splendour of his theme, his permanent popularity in the South, and the affecting story of his life, have given a somewhat undue importance to a poem which a judicious English critic does not scruple to call the great epic, in the strict sense, of modern times.

Torquato TASSO came of a baronial family settled, from the 13th century, at Bergamo; and he was lineally descended from the head of the eldest branch. His father, Bernardo, was a poet of much distinction, a soldier, a courtier, and a diplomatist. He was secretary to the Prince of Salerno, afterwards served in several embassies and courts, and married Porzia de' Rossi, of a noble family of Pistoia. The poet was born at Sorrento, in a palace overlooking the bay of Naples, March 1544.

Torquato, a wonderfully precocious child, after a roving youth and a desultory education as a lawyer at Padua and Bologna, settled into the common career of a well-born lad of culture, that of professional courtier and palace laureate. His *Rinaldo*, which has much of the poet's graces, was published at the age of 18, and at once attracted admiration. At the age of 21 the young genius was introduced to the court of Ferrara, where the Duke Alfonso and his two sisters, Lucrezia and Leonora d'Este, welcomed the handsome, graceful, and chivalrous youth. For some years he lived in affectionate intimacy with the beautiful princesses, published his *Aminta*, an exquisitely tender pastoral lyric, at the age

of 29, and finished his *Gerusalemme Liberata* at the age of 30, in 1574. The *Aminta* became the foundation of the modern Italian opera. The *Jerusalem*, though completed, was not published for six years.

About this time begins the tragedy of the poet's life. He became the victim of a form of insanity varying in degree, and seldom overshadowing mental activity and even self-consciousness, but sufficient to cause intense suffering in the melancholy, sensitive, profoundly scrupulous, and religious nature of the poet. He became morose, irritable, and engaged in a series of literary and personal quarrels, gave way to delusions, and became intolerable even to his best friends. We need not impute scandal to his fair patrons or cruelty to the Duke, who was at last forced to put the poet under control. He escaped, and wandered on foot to his sister at Sorrento, where an affecting scene is recorded. Again and again he returned to Ferrara, only to wander forth from one court to another, to be discarded from all, and at last to return to Ferrara perhaps in a hopeless passion for the younger Princess. A more than usually violent outbreak of temper caused the Duke to commit him to a lunatic asylum (1579), where he remained for seven years.

There, after the first incarceration, he was treated with what for the age was indulgence and good sense. He went abroad, lived freely, saw friends, read and wrote as he pleased. In confinement he had the torture of learning that his *Jerusalem* was being published by others in fragments and without his corrections; and this was soon followed by the unauthorised publication of his odes, sonnets, and pieces which had long circulated in manuscript. In 1586 Tasso left the asylum for the court of Mantua; and for nine years more he passed—a restless, morbid, agonised mendicant—from city to city, from palace to palace. Clement VIII., in 1594, invited him to Rome, to be crowned with bays in the Capitol. He came—but only to die. In a few months, worn out with disease of mind and body, the poet died, aged just 51, April 1595. A magnificent mausoleum in S. Onofrio's covers the bones of the miserable outcast, for whom princes had contended, though their bounties could not minister to a mind diseased. The poet was tall, handsome, very fair, having an ample forehead, with large and brilliant eyes of sky-blue tone.

It is difficult for the Englishman of to-day to comprehend the passionate delight which for three centuries the *Jerusalem* has given to Italy, a delight which is almost extinct now in Northern Europe. The exquisite melody of its stanzas is too often lost to British ears, and even when completely felt by us, these honeyed cadences are apt to pall on the masculine taste. In more things than in music this is the age of Wagner, not of Bellini. It is plain that in life, movement, mass, and the trumpet-note of heroic enthusiasm, Tasso falls short of Ariosto, not to speak of the great poets of the

world. The *Jerusalem* is the least heroic of all the famous epics—the least spontaneous, and the most sentimental. An epic which has nothing of the martial fire or the primitive freshness of the *Iliad* must undoubtedly fall into the secondary rank of immortal poems; but Tasso has qualities of his own—qualities of great value wherein he has no superior.

In symmetry of imagination, in pellucid grace, and in exquisite tenderness, Tasso stands supreme. His subject—the First Crusade—the character of his chief hero, Godfrey—the general design of his epic—are all admirable. Consummate art, in an artificial and exhausted epoch, could go no further; and if the courtly lover of princesses, in an age when the Renascence in Italy was already in its early grave, was no Homer, nor even Virgil, he produced all that was possible—the most perfect *literary* epic that cultured art ever wrote in modern times. It is true that the episodes greatly overpower the poem: not because they are disproportionate in scale or ill-combined with the whole, but because the court poet of Ferrara could paint exquisite scenes of gracious chivalry and romantic tenderness, but had seen no heroes in the flesh nor heard the crash of great battles and historic events. Nor was it possible for a very pious Catholic to do justice to the Moslem, or to feel the heroic side of the Saracen defence. In subtle melody, in faultless dignity and purity of thought, word, sentiment, in a varied circle of generous chieftains, loving natures, and angelic women, Tasso has not been surpassed by Spenser; whilst he has a far more lucid imagination and a more superb and magical colour. In poetry, as in art, much is forgiven to those who have loved much. We forget the luscious foreshortening of Correggio in the smiles of his enchanting cherubs. And the romantic, pathetic, and purifying sentiment inspired by all that is chivalrous in knight or saintly in woman has never found a nobler poetry than in that of Tasso, albeit to our Northern ears in notes that are far too rich with—

> Di sue dolcezze il lusinghier Parnaso.
>
> Where sweet Parnassus breathes the tuneful song.
>
> —HOOLE, tr.

In judging a great work of art it is impossible to look at it in the abstract apart from its own history in the world. The *Parthenon*, the *Madonnas* of Raphael, impress us, not only by their own beauty, but by the passionate admiration which centuries have lavished on them. And in our admiration for the *Jerusalem* of Tasso there mingles the memory of the enthusiasm that Europe felt, during at least 200 years, for the Clorindas and Erminias, the Rinaldos and the Tancreds. I have myself heard Venetian gondoliers, who fought for the Republic in 1849, chant stanzas of their favourite bard as they swept down the Grand Canal. We live in an age prone to fiercer and less gracious moods, to the mystery of the subtle idea, to brazen clangors and the harmony of discord; but

we have yet something to learn from Italy and her last great poet. [F. H.]

J. A. Symonds: *Renaissance in Italy*, vols. v. vii., and Article, *Encycl. Brit.* No translations of Tasso give the peculiar quality of this poet—luxurious grace of form and tone. Fairfax (1600) has vigour, but is archaic and rude. Hoole (1763) is conventional and lax. There are many recent—J. H. Wiffen (Bohn's Illust. Libr.), 1854, J. K. James, 1865, etc., etc., but they are all like academic copies of Correggio's angels. The Positivist Library includes Selections from Tasso. Portrait by A. Allori, F.

PETRARCH (*Francesco di Parenzo*), b. 1304, d. 1374.

The founder of the Classical Revival, and one of the chief poets of Italy, was a Florentine, born at Arezzo, 20th July 1304. His father, Pietro di Parenzo, called Petracco, was notary in the Rolls Court of Florence, and was expelled from his native city as one of the White faction by the same decree (January 1302) which exiled Dante. The son was born at Arezzo during his father's exile; he was brought up at Florence and Pisa, and was removed at the age of nine to Avignon, then a city under the rule of the King of Naples, and the seat of the Papacy. From boyhood the lad devoted himself passionately to letters; he studied at Montpellier, and then at Bologna; and he changed his name to PETRARCA. On his father's death, at the age of 22, he settled at Avignon, and nominally proceeded to orders in the Church.

For some fourteen years the brilliant student was absorbed in Latin letters and lyric poetry, living at Avignon, or in Vaucluse, a lovely and secluded valley near it, making occasional journeys to Paris, Flanders, the Rhine, and Rome. He was 23 when he first met Laura, the mysterious Beatrice of Petrarch's life, to whom his sonnets are addressed. It is not certain who was the shadowy object of his love, except that she was a married lady of spotless reputation, with whom the poet maintained a devoted friendship for twenty years until her death. At the age of 35, *nel mezzo del cammin di nostra vita*, Petrarch was recognised as the first scholar and poet of his age, and was formally crowned with laurel in the Capitol of Rome, April 1341.

Thenceforward the poet passed his life in courts, embassies, in the most cultured societies of Italy, in incessant correspondence with the learned men of all countries, or in rural retirement at Vaucluse, and Arquà, on the Euganean Hills. He had a host of literary friends and royal patrons; he collated manuscripts; collected gems, coins, and books, and poured forth an extraordinary series of epistles, eclogues, epics, treatises, essays, speeches, and theological meditations—all in Latin. It is singular that these—on which he most valued himself, and for which he was most valued in his own age—were soon surpassed in the next age, and are never read in our own. The exquisite lyrist survives only in the passionate love poems of his youth, which he hardly counted as amongst his literary products. He was found dead amongst his books, July 1374,

within two days of completing his 70th year. His bones lie in a red marble sarcophagus, which, with his house, may still be seen in the sequestered village of Arquà, looking over the wooded plain round Padua.

Petrarch was in many ways the first, and perhaps the best, of the Humanists—the true inspirer of the Classical Revival; and in a sense the founder of a really modern literature. Boccaccio his pupil, friend, and successor, well carried on the torch of ancient learning and classical grace. Though Petrarch is not a Latinist of the calibre of the 15th or 16th centuries, he was in scholarship immensely in advance even of Dante. His vast European influence did more than that of ten other men to fill Europe as a whole with the spirit of the Renascence. As an apostle of self-culture, he was hardly exceeded by Goethe, and he felt the same universal passion for letters which men like Leonardo felt for Nature. But Petrarch is no hero, nor even a great man in any sense. In all situations he remains an incorrigible master of mere language; he had no little of the weakness, the sentimentality, and contradictions of Rousseau; much of the vainglory and arrogance of Byron; and he showed the way to his followers in the Renascence towards incurable literary trifling with great human interests.

But it is not as the pioneer of the Renascence that we are here treating Petrarch. His place in this Calendar is that of the earliest of the purely lyrical poets who have transfigured for us love, sympathy, religious musings on life, death, man's heart, and the beauty of the earth. In these exquisite cadences of melancholy passion and in these dreams of love and bereavement, colouring all Nature in the intensity of feeling, especially in the second and grander part of the *Canzoniere* on the death of Laura, we have a lyric perfection which is hardly surpassed by *Lycidas* and *Prometheus Unbound*. In magical beauty of form, in consummate grace and in touching sensibility of soul, Petrarch's sonnets have no superior; and, except for brief flashes of Dante, they were the earliest in the roll of modern poetry to reach that level. [F. H.]

J. A. Symonds: *The Renaissance in Italy*, vols. ii. iv. v., and also *Life* in *Encycl. Brit.* Petrarch: *A Hundred Sonnets together with Hymn to the Virgin* (Ital. text and Eng. verse trans. by A. Crompton). *Pos. Pol.* i., Dedication; and *Testament, passim*. The Positivist Library includes selections from Petrarch. Traditional portrait in Laurentian Lib., F.

THOMAS-À-KEMPIS (*Thomas Hammerken*), b. 1380, d. 1471.

The author of the *Imitatio Christi* was long a mysterious personage, and is even yet but faintly known to us. Thomas HAEMMERLEIN, or Hemerken (*i.e.* "little Hammer"), was born of humble parents at Kempen, near Düsseldorf, in 1380. When about 14 years of age he entered as a scholar the house of "The Brothers of Common

Life" at Deventer. In 1406 he became a canon-regular of the Order of St. Augustine in the Brothers' Monastery of St. Agnes, near Zwolle, where he was ordained priest and spent the remainder of his long life. His principal occupations were copying books, training the novices, preaching, also writing the lives of the early Fathers and Brothers of the Common Life, and composing books of devotion. He died at the great age of 91.

After much controversy it may be considered settled that this Thomas was the author of the world-known book which from the heading of its first chapter bears the title of *The Imitation of Christ.* A copy undoubtedly written by his own hand, dated 1441, is in the Royal Library at Brussels, and now constitutes the original text. A facsimile has been published (Elliot Stock, London, ed. Ruelen). The book was first printed at Augsburg, 1486. The editions and translations exceed 2000. The Latin text and the verse translation by Corneille are in the Positivist Library.

Historically considered, *The Imitation* is to be regarded as a final summary of the moral wisdom of Catholicism, naturally issuing from the monastic class which more than others had escaped the classical tendencies prevailing in the 15th century: it and similar works of the same date "constitute the last product of Catholicism," and specially characterise the second century of the Western Revolution. And it must always be remembered that the Catholic Church, though smitten with decline, and in a minor degree the other Christian Churches, all of whom the *Imitatio* served, remained for three centuries in general charge of morals.

Written by a monk, the book was composed primarily for the daily discipline and edification of himself and other monks (I. 9, 20, 25, III. 10): but by the simplicity of its aim, its serene and deep truthfulness and beauty of feeling, it has availed for the like purpose to Catholics and Christians generally, and is available for all men. It is, says Comte, essentially an æsthetic work, a picture of man's moral nature. He declared it to be for Positivists a sacred book, and so used it himself. "The conclusive test of experience induces me to recommend above all the daily reading of the sublime, if incomplete, effort of à-Kempis, and the incomparable epic of Dante. More than seven years have passed since I have read each morning a chapter of the one, each evening a canto of the other, never ceasing to find new beauties previously unseen, never ceasing to reap new fruits, intellectual or moral."

The Imitation makes no pretensions to be an objective survey of human life, but affirms the true principle of living. It continually presents personal moral improvement as the first and constant aim for every individual, and affection as the fundamental bond of harmony within and without, its office being both to inspire and to moderate all thought, all action. This (always replacing absolute by relative expressions) corresponds to the Positivist maxims—"The principle Love, the foundation Order, the end

Progress;" "Progress is always the development of Order;" "Submission is the basis of all improvement, moral, intellectual, and even physical." [V. L.]

The little book, called *The Imitation of Christ*, with which the name of Thomas-à-Kempis is associated, comes to us as the supreme expression of the devotional life, the poem of the Catholic ideal. No other book has had so wide and varied an acceptance; it has been adopted by Protestants as well as by Catholics; is read by agnostics and freethinkers; has been translated into every civilised tongue; and still remains the most beautiful book of devotions that we possess. "So small in compass that it could be carried where no other book was borne," says Dean Milman, "it contained the whole essence of the Mystic school." It told, in simple picturesque words, the experience of the devout heart, the long endeavour, the yearning for perfection—the consolation of the life out of self. The book was written in Latin, but the language is superior to the ordinary ecclesiastical Latin—it is purer in form, and singularly pure in imagery; it falls into short epigrammatic sentences of wonderful energy and pathos; sometimes it suggests to us the *Proverbs*, sometimes the *Psalms* of David.

In *The Imitation of Christ* and St. Augustine's *City of God*, we have two aspects of the Catholic life in strong contrast. The first is purely personal; it concerns the individual soul in its relation to the Deity, and knows nothing of social aspiration, nor of the Church as an organisation. *The City of God* is the key-note of that vast spiritual hierarchy which was the glory of Hildebrand. *The Imitation* has no place in it for human love, for human knowledge, for the service of man; the soul is stripped bare of all these hindrances and temptations, to live the mystic life. "*Amem te plus quam me, nec me nisi propter te*," says the teacher in the beautiful book of the "Consolation." It may fairly be urged that had *The Imitation* been more "humane" in a large sense—had it been less personal, less narrow in conception, it must have lost in passion, intensity, and tenderness; but none the less, while cherishing this beautiful inheritance of the piety of our forefathers, one must feel how great is the need for a religion of social service.

Among translations of *The Imitation*, the famous translation in verse by the French poet Corneille should be mentioned, and the translation in English prose, made under the auspices of the late Cardinal Newman. [E. B. H.]

De Imit. Christi, ed. Hirsche (Berlin, 1874), and *Prolegomena*. S. Kettlewell. *Thomas à Kempis, etc.* (1882); *Authorship of Imit. Chr.* (1877). R. Storr: *Latin Concordance to the Imitatio Christi*. *Phil. Pos.* vi. p. 187. *Pos. Pol.* i. 177; iii. 371, 378, 460; iv. 352, 481; *Testament*; *Catechism*, 2nd ed., p. 56.

LOUIS OF GRANADA, b. 1505, d. 1588.

LOUIS was born at Granada, and became a Dominican monk at Cordova: he was afterwards prior of a convent which he founded at Badajos, but spent his later years at Lisbon, where also he died, Provincial of his Order, confessor to the Queen Regent, etc.

Louis was renowned as a preacher, yet more as a writer of handbooks of mystical piety: and as such he figures here. Of these books the most widely popular was *The Sinner's Guide* (1556). "Its general tone," writes Ticknor, the historian of Spanish literature, "was that of a moving and harmonious eloquence:" doubtless also it was purely orthodox, nevertheless the book was placed awhile on the *Index Expurgatorius*, and the author harassed by the Inquisition. Later on, Louis' works were fervently praised by Pope Gregory XIII., St. Charles Borromeo, and St. François de Sales. Many of them have been translated into foreign languages, and "have continued to be printed and admired in the original Spanish down to our own times." Louis also achieved a fine Spanish version of the *Imitatio Christi* of à-Kempis. [V. L.]

Louis was buried in the Dominican Church at Lisbon.

BUNYAN (*John*), b. 1628, d. 1688.

John BUNYAN, the Puritan mystic, the "father of our English novelists," was born at Elstow, a little village near Bedford, "in very mean condition," as he tells us. His father, however, "was careful to maintain his family," sent his son to the Bedford grammar school, and brought him up to his own trade of tinker. Bunyan grew to manhood in the very centre of the struggle for civil and religious liberty, but, although he served as a soldier, we have no evidence on which side he fought; he apparently did not think the matter worth record. His whole soul was engrossed by the great spiritual issues of life, and after some years of painful religious conflict and indecision, we find him a member of the Baptist community, preaching everywhere of sin and repentance, of judgment and the wrath to come. His activity soon brought him under the persecuting Acts of Charles II.'s reign; he was ordered to give up his public teaching, and suffered imprisonment for more than twelve years rather than submit. It was during these years, and in gaol, that he wrote *The Pilgrim's Progress*, the allegory which has made his name famous in all English-speaking countries.

The Pilgrim's Progress passed rapidly through many editions, was eagerly read in America, in Holland, by the Huguenots in France; Catholic versions were made; and it is commonly said that the book has been translated into more languages than any

other after the Bible and *The Imitation of Christ*. The popular verdict is now generally accepted ; *The Pilgrim's Progress* is the poem of the Puritan ideal, just as *The Imitation* is the poem of the Catholic ideal.

Bunyan wrote many other religious allegories, among which *The Holy War* and the *Life of Mr. Badman* are prominent. He died from the effects of cold, while on an errand of mercy, in 1688. His tomb is in the Bunhill Fields burying-ground in London.

[E. B. H.]

J. A. Froude : *Bunyan* (Eng. Men of Letters). J. Brown : *Bunyan, his Life, Times, and Work*. Portrait by T. Sadler, N.P.G.

MADAME DE LA FAYETTE (*Comtesse de*), b. 1634, d. 1693.

Madame DE LA FAYETTE, the intimate and lifelong friend of Madame de Sévigné, the friend and associate of the most eminent men of her day, was born in Paris in 1634. Her maiden name was Marie Madeleine Pioche de la Vergne. Distinguished for her beauty and grace, no less than for her charm of manner and delicate wit, she soon became one of the most brilliant leaders of the brilliant coterie of the Hôtel Rambouillet. In 1655 she married the Count de la Fayette, but was early left a widow, and thenceforth she devoted herself to her warm friendships and her literary work. She wrote several stories, of which the *Princesse de Clèves* is the most important, and many letters to distinguished persons.

The *Princesse de Clèves* is in a single volume of small size : the personages are some of them historic ; the scene is laid at the court of Henri II. Madame de la Fayette is herself the heroine ; her husband is the Prince de Clèves. But it is essentially a study of character, firmly and delicately drawn. It is the first attempt at the modern novel, in which all should be true and finely studied from nature, as opposed to the stories of adventure and the romances of the Middle Ages. La Fontaine had doubtless given an impulse, but Le Sage's *Gil Blas* had not yet appeared, and it was forty years before De Foe wrote in England. To Madame de la Fayette, then, belongs the merit of having created a new art, in which, it seems likely, as A. Comte pointed out, that women will continue to excel. It should be noticed that the *Princesse de Clèves* is no less remarkable for purity of feeling and delicacy of appreciation than it is for grace and purity of language. It has long been a French classic, and has a place in the Positivist Library as the first French character-novel.

[E. B. H.]

C. A. Sainte-Beuve : *Portraits de Femmes*. Madame de la Fayette is buried in the Church of St. Sulpice, Paris.

MADAME DE STAEL (*Anne Louise Germaine*), **b. 1766, d. 1817.**

The daughter and only child of the financier Necker and of Susanne Curchod, Gibbon's early love, was carefully educated by her mother, and was soon introduced into Parisian society, where as a girl she was remarkable for brilliancy, coquetry, and audacity. At the age of 20 she married Baron de STAEL-Holstein, Swedish Minister in Paris, and is known by his name, though she treated him with indifference, and ultimately was separated from him. As an ambassador's wife she held a brilliant *salon* in Paris, until the Revolution for a time drove her first to Switzerland and then to England. Under the Directory she returned to Paris ; and, entering into a struggle with Napoleon, she was exiled in 1803. Then she travelled in Germany and Italy with Benjamin Constant and other lovers, and died soon after the Restoration in 1817, at the age of 51.

Madame de Stael's personality, her energy, wit, literary skill, and restless courage, made her one of the most striking figures of the Revolution and Empire. But it is solely as the authoress that we are concerned with her here. She began to publish before she was 20 ; but her principal works are *Delphine*, a novel of sentiment, in 1802, in which her own story is told, *Corinne* in 1807, and *De l'Allemagne* in 1813. The immediate effect of all these was great. In *Delphine* a woman, for the first time since the Revolution, reopened the romance of the heart which was in vogue in the century preceding. Comte would daily recite the sentence from *Delphine*, " There is nothing real in the world but love " (*Pos. Pol.* iv. 44). Our thoughts and our acts, he said, can only give us happiness through results : and results are not often in our own control. Feeling is entirely within our power ; and it gives us a direct source of happiness, which nothing outside can take away.

Corinne was a piece presenting an æsthetic tour, mainly in Italy, a French *Childe Harold* in prose. The book on *Germany* is a vigorous plea for freedom, toleration, and respect for the institutions and ideas of a neighbouring people. It is true that none of these books are much read now. They were never original, nor are they written with true beauty. But they have eloquence, not a little pathos, and at times deep feeling : and as they precede the works of Scott, Byron, Shelley, and partly of Châteaubriand, their historical importance is great in the development of modern romanticism, of the romance of the heart, the delight in nature, and in the art, antiquities, and history of Europe. [F. H.]

C. A. Sainte-Beuve : *Portraits de Femmes.* Madame de Stael is buried in her father's tomb in the grounds of Coppet on the Lake of Geneva. Portrait by F. Gerard.

FÉNELON (*François de Salignac de la Mothe-Fénelon*), b. 1651, d. 1715.

One of the most interesting figures in French ecclesiastical history, the famous rival of Bossuet, François de la Mothe-FÉNELON, was born at the castle of the same name, in the province of Périgord. He came of an ancient and noble family, which could already boast of many distinguished sons. As a child Fénelon was remarkable for a delicate and sensitive nature, and gave early promise of special mental gifts. His education may be said to have been singularly fortunate. His father trained him in his early years, sent him to Cahors and afterwards to the Jesuit Collège de Plessis, in Paris, where he found an admirable friend and teacher. It is told of him that he preached his first sermon, like Bossuet, at the age of 15, "with extraordinary success." He did not, however, formally enter the Church till he was twenty-four, when he devoted himself to the service of the poor, and made the education of the young a special study. It is from this early period that dates his treatise *Sur l'éducation des filles*.

After the Revocation of the Edict of Nantes, great efforts were made by the Catholic Church at conciliation, and a mission to the Protestants was set on foot. Fénelon's rare qualities of fervour and gentleness marked him out as a fit leader of such an enterprise. He carried on the work in a fine spirit of moderation, refused the military escort offered him, and achieved a considerable measure of success. The distinction he won in his mission probably procured for him the notice of the King, who in 1689 appointed him as tutor to the young Duke of Burgundy, the heir to the throne. Fénelon devoted himself with ardour to the difficult task assigned him. The young Prince was singularly wayward and passionate, Fénelon in his enthusiasm aspired to make of him "a new St. Louis," "a philosophic king." He was indeed singularly fitted for his post: "he was a born teacher;" he soon won the loyalty and affection of his pupil, who, however, did not live to realise the high hopes formed for him. It was for him that Fénelon wrote the well-known fables, the *Dialogues des Morts*, the *Télémaque*, and the *Aventures d'Aristonous*. In 1695 he was made Archbishop of Cambrai.

It is not possible here to enter into the celebrated controversy between Bossuet and Fénelon in connection with Madame Guyon and the Quietists. Bossuet thought the new mysticism dangerous to the Church; Fénelon, on the other hand, was touched by the fervour and the genuine enthusiasm of the Quietists. His book *L'Explication des Maximes des Saints* was practically a defence of Quietism. But the advocacy of the Archbishop of Cambrai had emphasised the danger, the book fell under the censure of Rome, and Bossuet, with the King's aid, procured for it the condemnation of the Sorbonne. Fénelon was deprived of his post of tutor to the

royal children; finally he made public submission, and withdrew to his diocese of Cambrai, where he spent the remaining years of his life, ministering to the poor, teaching and counselling, the object of pilgrimage from all parts of France, beloved by Protestants and Catholics alike. "In all things," says St. Simon, "he was a true bishop."

Fénelon's principal works are the *Télémaque*, already mentioned, and his "*Traité de l'existence de Dieu.*" But he wrote many treatises on religious subjects, letters, and sermons. They are all remarkable for grace of form, for elevation and beauty of thought. It will be noticed that he takes his place under *Modern Poetry* with Thomas-à-Kempis, Klopstock, and Milton, not under *Catholicism* with Bossuet. Fénelon may be said to have impressed the world rather as poet of the Catholic life than for any brilliant service to the Church, or any literary work of the first order. "A tall thin man, with eyes from whence fire and talent streamed like a torrent, and with an expression of face such as one could never forget," with manners of exquisite charm and modesty, he fairly captivated his contemporaries. He was moreover a scholar, a man of unerring literary judgment, "et pour de l'esprit il en avait à faire peur." He saw, what Bossuet had not seen, the abject condition of the French peasant; he laboured, as man and priest, in the cause of the people. His life was simple and harmonious, and in all that he said and did there breathed a spirit of true and unaffected piety. His name is enshrined in beautiful memories; he was the latter-day poet of the contemplative life.

[E. B. H.]

Viscount St. Cyres: *François Fénelon* (1906). F. Brunetière: *Manual of the Hist. of French Lit.* C. A. Sainte-Beuve: *Causeries du Lundi*, ii. x. Fénelon was buried in Cambray Cathedral. Portrait by Vivien, L.

DE SALES (*St. François*), b. 1567, d. 1622.

FRANCIS was a Savoyard of noble birth, born in the ancestral castle of Sales, near Annecy, in 1567. After having been educated in the Jesuit College de Clermont, at Paris, and then in the University of Padua, he renounced a temporal career, and entered the Church. He soon became a famous preacher, and earned much honour by a courageous mission to the Protestants of the Chablais (1594-96). In 1602 he was consecrated Bishop of Geneva, and thenceforth devoted himself to his Episcopal duties in the parts of his diocese which had remained Catholic, taking as his model St. Charles Borromeo. He refused promotion in the French Church, also a cardinal's hat. He died in 1622: his remains rest in the cathedral church of Annecy. He was canonised by Pope Alexander VII. in 1656.

The prayer on his festival (29th January) suggests the sweet charity of his disposition, and speaks of his having "made himself

all things to all men." Bourdaloue, Bossuet, and many others have since spoken his praises. In this Calendar St. Francis holds his place as the author of two pious handbooks (composed in French), *The Introduction to the Devout Life* (1608) and *The Love of God* (1616). In both the author declares his desire to appeal to those who live in the world, not recluses; in the first he addresses as a typical disciple, a Woman—in the second, a Man. Both treatises characteristically concern private morals alone: the conditions of civic and industrial life, and the trials of the modern intellect, are in no wise dealt with. The general temper is mystical and above all affectionate: the Saint especially founds himself on such predecessors as St. Catherine, St. Theresa, Louis of Granada, etc. It is most remarkable how the governing principle of affection, which is the most vivid bond of communion between Catholicism and the piety of the Future, was (like Palestrina's music) put forth with beautiful energy by Francis and other champions of the elder faith during the heat of the religious conflict. From this point of view also the Saint's large conception of prayer (*Love of God*, books 6 and 7) is very interesting: it embraces "all acts of contemplation." The reader should compare these books with the Positivist Catechism. [V. L.]

Life of St. Francis, by J. Marsollier, prefixed to his collected works (1821). J. P. Camus: *Spirit of St. Francis*. F. Brunetière: *Manual of the Hist. of French Lit.* C A. Sainte-Beuve: *Causeries du Lundi*, vii. St. Francis: *Introduction à la vie dévote* (ed. by S. de Sacy, 2 vols. 1855).

KLOPSTOCK (*Friedrich Gottlieb*), b. 1724, d. 1803.

The earliest of the founders of modern poetry in Germany, F. G. KLOPSTOCK, was born in 1724, of an austere and respectable family at Quedlinburg, in Saxony. He was thoroughly educated there, at Jena, and at Leipsic; where, in 1748, at the age of 24, he published the first three cantos of his *Messiah*, a sacred epic, evidently inspired by Milton. It was received with immense enthusiasm, and the young poet found himself famous. Two years later he went to Zurich, where he was invited by Bodmer, the ruling critic and poet of the day, and was welcomed with unbounded enthusiasm. He was loaded with honours and invitations, and from this time forth he enjoyed the patronage of princes and nobles, a title, and two pensions. His life was passed in literary society, in the production of poetry, and in domestic happiness, first at Copenhagen, then at Carlsruhe, and finally at Hamburg, where he died in 1803, in his 79th year, in the midst of the great war, and having somewhat outlived his popularity.

Klopstock's main work is *The Messiah*, published in parts in 1748, 1755, 1773—having incessantly occupied his mind from his 22nd to his 50th year. The first half of it was issued when the poet was only 31, many years before the chief works of his contemporary

Lessing ; and it would have been a miracle if a youth had been able to create a fully developed national literature. German criticism has accepted the opinion of Goethe, that Klopstock gave a powerful impulse to the rise of a national literature, that his *Messiah* was greatly in advance of its time, but that it has now been supplanted by much nobler work. The place of Klopstock is no doubt rather historic than poetic. His influence created a potent enthusiasm in the German-speaking world, which to-day pronounces his *Messiah* to be sublime, but has ceased to read it. His pure and touching *Lyrics* are more read. The sacred epic, it is true, has fine qualities : dignity of conception, force of language, nobility of sentiment, and an epic stateliness of devotional sublimity, sounding, it has been said, like an organ in a cathedral. But when the first transports of national admiration were exhausted, it was found, even in the poet's lifetime, to be somewhat monotonous and vague, and it is now felt to be tedious. At the end of the 18th century, the Bible could no longer supply the material of a great national poem. But, as a German enthusiast has well said, " *The Messiah* was the baptism of our literature." [F. H.]

There have been several Eng. trans. of the *Messiah*, in whole or part, the first in 1763. Klopstock is buried at Ottensen, near Altona.

GESSNER (*Salamon*), b. 1730, d. 1788.

The lyric poet of Switzerland, Salomon GESSNER, was born at Zurich, in 1730, and there he passed nearly the whole of his life, and died in 1788, at the age of 58. He was a painter by profession, his productions, both on canvas and in verse, being the classical idylls in vogue in the middle of the eighteenth century. His poems date from 1751 to 1762, and are graceful but somewhat conventional idylls founded on *Theocritus, Daphnis and Chloe*, and other pastorals. He had a great and wide popularity in his own age, the age of Metastasio, Lancret, and Bernardin de St. Pierre, amid the vogue of the sentimental pastoralism which has often in history preceded great social convulsions. Gessner belongs entirely to this order, and has no part in the revolutionary outburst to which we now pass. [F. H.]

BYRON (*George Gordon, sixth Lord Byron*), b. 1788, d. 1824.

The last great name in the roll of Modern Poetry is that of the daring spirit who, with Shelley and Goethe, put into immortal words the consciousness of man's moral force as the arbiter of his own destiny, the lord at once and the interpreter of Nature. This new element of lyric emotion is indeed revolutionary in its origin and in its sympathies ; but, with all its inherent defects, it points

the way to a poetry of the future more true than the vague yearnings of Pantheism, more inspiring than any mere picture of the past, and more manly than the musings of the Quietists.

George Gordon BYRON came of an ancient race who, in 1540, had received from Henry VIII. the rich Priory of Newstead Abbey, in Nottinghamshire; who traced descent from a long line of soldiers back to the Conquest; and in 1643 had obtained a peerage for services in the civil war. During the 18th century the Byrons were distinguished as seamen, as spendthrifts, and debauchees. The poet was born in London, January 1788; and at the age of ten succeeded to the peerage and a ruined estate, on the death of his great-uncle, the fifth "wicked Lord." These limits do not permit us to repeat the familiar story of the life of him who was certainly the most interesting personality of the 19th century. It has been probed and discussed with bitter exaggeration and wearisome minuteness. Suffice to say that it is the story, too familiar to us in this series of great men, of splendid genius and a truly noble nature, stained though not ruined by vice, egoism, and some paltry desires. But a spirit capable of such intense and enduring love, of such passion for great causes and high endeavours, of so much courage, generosity, and sympathy, and a life flung with such stormy energy into an ideal world of mighty and passionate beings—wipe out the memory of the sensualities which scandalise many and the meanness and affectation which have exercised so many over-busy pens.

It is a story of a childhood cruelly maltreated and neglected; of a boyhood wayward, desultory, passionate, and loving; of a youth spent in folly, vice, day-dreams, intense study alternating with masterful extravagance; of a manhood wrecked by fierce temptations, domestic tragedies, an ill-assorted marriage, outrageous ill-usage, and a curious combination of disastrous circumstances, but withal ennobled by gigantic labour, much of beautiful affection, true sympathies with all that was great in the past or promising for the future, and a burning passion for social progress. Byron's first poems were published at the age of 19; his travels began at the age of 21; he left England for ever at the age of 28; the next eight years of his life were memorable for prodigious poetic activity, and within them almost all his main work was done; he died during the war of Greek Independence at Missolonghi, April 1824, aged 36. His ashes lie with his ancestors in Hucknall-Torkard Church, Nottinghamshire.

This is not the place to renew the long debate as to the poetry of Byron, of which the highest qualities have hardly yet been understood, and of which the glaring defects are now pedantically exaggerated. Keats, Shelley, and Tennyson, their interpreters and their imitators, have made our age exacting in the matter of musical cadence and subtle mastery of phrase such as mark the highest level of poetry. And it is but too plain that Byron does not even

seek after the perfection of form which we have in the *Sonnets* of Shakespeare, *Lycidas*, or *In Memoriam*. He never seems to have realised the art of poetry as a mysterious alembic of musical language; but he poured out a torrent of impetuous thoughts in verse with the same reckless profusion as did Scott in prose. And both, we are now told, gave us rank commonplace, because they spoke in hot haste, using the first phrase that rose to the lip.

But artists must be judged in the light of their own inspiration; and it is right to remember that Byron, in about ten years of activity, produced some 60,000 or 70,000 lines—more than the *Iliad*, the *Odyssey*, the *Æneid*, the *Divine Comedy*, and *Paradise Lost* all put together. And in the single year 1821, he wrote upwards of 15,000 lines, or as many as are in the *Iliad*. Quantity, of course, is in poetry a poor equivalent for quality. But it shows that Byron had his own methods, and elaborate form was plainly not amongst them. He was a true *improvisatore*, boiling over with ideas, aspirations, memories, and impressions, as to man and Nature, as to the Past and as to the Future, as to the hopes of nations and the dignity of manhood. He chose to pour these forth in verse, without the care which all great verse demands; so that it may be said that he was a great poet who did not understand what poetry implied.

It would be an error to make too much of Byron's weakness in form. The invocations to Athens, to Rome, to the Sea, and some of the occasional lyrics show that he held the magic lyre of the poet, though it was of narrow compass and too often rang out a false note. Even at his best, Byron can hardly write twenty lines without stumbling, and is at all times perilously near the prose of rhetoric. But his conceptions are neither prosaic, diluted, nor commonplace. And conceptions, not form, are the bone and sinew of all high poetry. Take Byron's work as a whole, and weigh its mass, its variety, its glow, its power of stirring nations and of creating new modes of thought—its social, national, and popular influence—its effective inspiration on men—and we must place him, as did Scott and Goethe, amongst the great poetic forces of modern ages.

To judge Byron truly, we must look on him with European and not with insular eyesight. His power, his directness, his social enthusiasm, fill the imagination of Europe, which is less troubled than we are to-day about his metrical poverty and conventional phrase. To Italians he is almost more an Italian than an English poet; to Greeks he is the true author and prophet of their patriotic sentiments; and in France and in Germany he is now more valued and studied than by his countrymen in a generation, when subtle involution of idea and artful cadence of metre are the sole qualifications for the laurel crown. When this literary purism is over, Byron will be seen as the poet of the revolutionary movement which early in the 19th century awoke a new Renascence. He filled it with a sense of the inherent royalty of man and his mission to subdue the earth and to make it his final and beautiful home.

The romances and stray verses of youth, the satires, and even *Don Juan* will be set aside. But the picture of Humanity in the Past and the visions of Man's power in the Future, in the latter part of *Childe Harold*, in *Manfred*, *Cain*, *Heaven and Earth*, will remain as permanent appeals to strengthen the heart and inspire respect for inherent Manhood. [F. H.]

T. Moore : *Works and Life*. John Nichol : *Byron* (Eng. Men of Letters). W. Minto : *Life*, in *Encycl. Brit.* R. J. F. Edgcumbe : *The Last Phase*. J. Morley : *Miscellanies*, vol. i. His poems, excluding Don Juan, are in the Positivist Library. Portrait by Phillips, N.P.G. ; by Westall, N.P.G.

SHELLEY (*Percy Bysshe*), b. 1792, d. 1822.

The eldest son of a rich commonplace baronet, SHELLEY arose in his youth a Revolutionary poet, and even prophesied a modern purely human piety. From University College, Oxford, he was expelled for circulating a pamphlet entitled "The Necessity for Atheism" (*Queen Mab* and notes) ; and was thereupon cast out by his family. His Gretna-Green marriage with Harriet Westbrooke (1811), their separation (1814), and his flight with Mary Wollstonecraft Godwin can only be mentioned here ; but we must add emphatically that Shelley's nature was in a high degree both generous and pure. Upon Harriet's sad death in 1817, Mary became his wife (Dedication to *Laon and Cythna* ; subsequently entitled, *The Revolt of Islam*).

In the same year (1817), at the instance of Mr. Westbrooke, Shelley was by decree of Lord Chancellor Eldon declared unworthy to have the charge of his own children. This event, and his suffering health, made him resolve to quit England. Henceforth he and Mrs. Shelley lived a wandering life in Italy, where he saw much of Byron. In 1822 he was drowned in the bay of Spezzia by the foundering of his boat in a storm. His remains, cast upon the beach, were solemnly burned by his friend Trelawny in the presence of Byron and Leigh Hunt. The coffered ashes were buried in the Protestant cemetery at Rome, not far from the grave of Keats, in whose memory he had written *Adonais*. On the tombstone was inscribed "Cor Cordium."

Shelley essentially represented the Revolution of 1789. That he felt to be the modern crisis of world-wide import : but rightly judging the afflicting sequel (not least Napoleon's career), and looking back gratefully upon the Art of the past, as the books he loved attest (Homer, Æschylus, Plato, in a measure Dante and Boccaccio ; the Elizabethan dramatists, Calderon and Milton), his genius was led to qualify the revolutionary creed by new features of grace pointing to a wiser faith, although his own necessarily remained incoherent and unsatisfied to the end (*Adonais*, stanzas, 31-33). Rebellion against all authority, especially priest and

king ; martyrdom ; exulting hopes for the future deliverance and unity of Man—of these he sang with flaming zeal : but with them he interfused gentle compassion, tender appreciation of feminine companionship, fetichistic worship of free Nature, and an impassioned feeling for the ennobling office of art and beauty in every form. All these, set forth with characteristic splendour of rhythm, are to be found in his chief work *Prometheus Unbound* (1820), a lyrical drama, where, however, the design is marred by the deliverance coming from a blind demon named Demogorgon. His *Ode to Liberty* is especially interesting as the dithyrambic utterance of a creed striving for a basis in the history of man. But his most perfect work is in the minor poems : he was a master of song. Comte inserted his name in the Calendar for his lines on Subjective Immortality (*Laon and Cythna*, canto ii. stanza 48), and the prophecy of Humanity (*Prometheus*, act iv. lines 394-423). [V. L.]

E. Dowden : *Life of Shelley*. E. J. Trelawny : *Last Days of Shelley and Byron*. Comte : Letter to A. J. Ellis, April 1857. Portrait by A. Curran, N.P.G.

ELISA MERCŒUR, b. 1809, d. 1835.

This precocious and unhappy genius was born at Nantes, 1809. Being fatherless and destitute she was educated by a lawyer of her native town, and from childhood showed a passion for poetry and most precocious gifts. Her poems were published when she was only seventeen ; and she was at once admitted into the Academy of Lyons, and the next year into that of Nantes. She was kindly welcomed by Châteaubriand, Lamartine, and many critics and poets, and received wide popular applause. She was, however, forced to support herself by journalism, and, falling a victim to phthisis, she died in 1835, at the age of 26. Her tomb in Père La Chaise is inscribed with some of her verses : it has become a spot of pilgrimage to young Parisians ardent of fame. Her precocious genius, sad life, and the pathetic melancholy of her poetry surrounded her with an interest which has survived until now. Comte found in her career a touching likeness to that of Clotilde de Vaux, and applied to her the line—" La pierre du cercueil est ton premier autel." The young poetess appeared to him to embody a spiritual faith entirely devoid of theology, more complete than that of Byron, more clear than that of Shelley. And he cited with admiration the line, " L'oubli c'est le néant ; la gloire est l'autre vie " (" To be forgotten is the true annihilation ; man's future life lies in being remembered with honour ").[1] [F. H.]

Pos. Pol. i. p. xlv.

[1] Letter to A. J. Ellis, April 1857.

MILTON (*John*), b. 1608, d. 1674.

The life of the second great English poet almost exactly coincides with the rise, development, and decline of the grand outburst of English Puritanism, which followed the authorised version of the Bible in 1611.

John MILTON was a descendant of a family of substantial yeomen long settled in Oxfordshire. His father, John Milton, having been disinherited as a Protestant, came to London and established himself as a scrivener in Bread Street, Cheapside. There the poet was born, 9th Dec. 1608, ten years after the death of Spenser, and eight years before the death of Shakespeare. He received a most careful education, being from early boyhood an impetuous devourer of books. He was a scholar of St. Paul's School at the age of 10, and entered at 16 as a pensioner at Christ's College, Cambridge, where he remained seven years, taking his degree of M.A. at the age of 24. At school and at college he was distinguished by his passion for classical poetry, by independence and reserve of spirit, a pure and simple life, and strong love for one or two chosen friends. He left Cambridge in 1632, eight years before the Long Parliament met, a master of Latin, Greek, French, Italian, Hebrew, skilled in fencing and other exercises of a gentleman. He then retired to his father's rural retreat at Horton, near Windsor, resolved to devote his whole life to poetry, and filled with the grand projects and ideals which he rehearses in the noble second sonnet. It was the peculiar fortune of Milton to find in his excellent father a man of rare sense and much culture, a parent who was quite willing to aid the aspirations of his son towards a life of self-training for high art. For six years the poet remained in profound retirement, absorbed in study, meditation, and poetry.

It has been well said by Mark Pattison:—"Milton's life is a drama in three acts. The first discovers him in the calm and peaceful retirement of Horton, of which *L'Allegro*, *Il Penseroso*, and *Lycidas* are the expression. In the second act he is breathing the foul and heated atmosphere of party passion and religious hate, generating the lurid fires which glare in the battailous canticles of his prose pamphlets. The three great poems, *Paradise Lost*, *Paradise Regained*, and *Samson Agonistes*, are the utterance of his final period of solitary and Promethean grandeur, when, blind, destitute, friendless he testified of righteousness, temperance, and judgment to come, alone before a fallen world." His six years at Horton were spent, as he tells us, in "turning over the Latin and Greek authors," in systematic study of poetry, history, Hebrew and modern languages, the cultivation of music, and in writing the exquisite lyrics. These in *Lycidas* touch the highest point of lyrical perfection that the English language has ever reached, so that therein the spiritual passion of Puritanism seems transposed into the melancholy music of Petrarch.

At the age of thirty, in 1638, the poet set forth on a journey through France and Italy to Rome. He was absent about sixteen months, and visited Grotius, Manso, the patron of Tasso, Diodati, and Galileo; and was received with delight by the most cultured and learned societies of France, Italy, and Geneva. He was called home in 1639 by the sad prospect of imminent civil war. "I thought it base," he said, "whilst my countrymen were fighting for liberty, that I should be travelling abroad to improve my mind." For twenty years (1640-1660), from the opening of the Long Parliament until the restoration of the monarchy, the poet was absorbed in the advocate and then in the servant of the Commonwealth. First, he dedicated his time to education and political pamphleteering; in 1649 he was made "Secretary for Foreign Tongues" under the Commonwealth government, a post in which he laboured regularly for ten years till the downfall of the Protectorate. He was there in close relation with Cromwell and other leaders of the Republic; but his services were purely literary, and nothing is known of any closer intercourse.

It is to the last fourteen years of his life (*ætat.* 52-66), when the republican poet, blind, deserted, ruined, and broken-hearted, had withdrawn into austere retirement, that we owe the two great epics and *Samson.* Since the age of 43, the insatiable student of books had been totally without sight. He had buried his first wife, Mary Powell, an uncongenial spouse, in 1652; his second wife, Katherine Woodcock, died after a short term of married life in 1658; and the poet in 1663, then 55, with three little girls, married his third wife, Elizabeth Minshull, a very worthy woman, who survived him. The last thirty years of his life were passed in London, except for a visit, during the plague, to Chalfont St. Giles, where the only house which he inhabited that remains is still to be seen unaltered. Here partly, and in his residences in the city, in Bunhill Fields, the later poems were composed.

Paradise Lost was published in 1667, but it had been completed some years earlier; it was seriously begun nearly ten years before, and it had haunted the mind of the poet for at least thirty years. *Paradise Regained* and *Samson Agonistes* were published together in 1670, and were completed in the five years preceding. The poet lived four years more; but he wrote no more verse. He died in 1674, at the age of nearly 66, and was buried in St. Giles, Cripplegate, revered by his intimates, and even already famous, in the spot where his grave—long, alas! desecrated—is still marked and often visited. With all his sorrow, afflictions, and disappointments, both public and private, his life was one of absolute dedication to his great purpose and high calling.

Both the *Lyrics* and the *Paradise Lost* were included by Comte in the Positivist Library; and, with reference to the revolutionary and critical storm which gave it inspiration, he does not scruple to speak of "the inimitable epic" as "the highest measure of

Man's poetic powers." The three chief lyrics have almost every quality of poetry in literal perfection. No other 500 lines in English soar to so lofty and faultless a level, without a jarring note or a feeble phrase: so that they have become part of the very thought and language of all cultured Englishmen. The *Paradise Lost* has music and conceptions even more sustained and enthralling, such as Shakespeare, Dante, and Homer alone can match. It is evident, however, that the epic has not the incomparable perfection of the lyrics. There are in it incongruities, vagueness, monotony, limitations of human types, which are never felt in presence of the three supreme masters, and seldom even in Virgil, Ariosto, Calderon, or Goethe. It is plain that Puritanism and an abortive revolution forced this consummate poet to turn away both from Past and Present, and to search for the subject and scheme of his epic in his own meditations on the Hebrew Bible. He treated this with extreme freedom, and not without a disputatious dogmatism; but even Milton could not shake himself free from its obsolete theology and its barren cosmogony. That a great poet, under such conditions and in such an age, should have done so much with the Hebrew Pentateuch as his inspiration is one of the noblest triumphs of human genius.

At the same time, this great citizen and heroic soul, being forced back upon his own heart for his ideal of Man in presence of Nature and its Creator, produced from the depths of his pure and rich imagination a marvellous picture of Humanity in all its naked essentials, before History had loaded its memories, or civilisation had clothed its life with conventions. The aim of Milton is thus analogous to that of Dante; and, in simple majesty and unity of scheme, for a time it seems even superior; until the rigid limits of Scripture and inevitable want of varied human interest compel us to admit that the close of the *Paradise Lost* is hardly equal to its sublime exordium and the earlier acts in the great drama of Man's Creation, Fall, and Salvation. Yet the originality, power, and eternal meaning of Milton's poem gain fresh significance as civilisation advances; and we see that since the work of Dante there has been no such approach to the ideal epic of Humanity. Like Dante, like Homer, Milton has given us a *living*, and not a *literary*, Epic. It is Dante amongst the moderns, and Virgil amongst the ancients, whom, in sustained moral purpose and in religious consciousness of being the inspired voice of his age, Milton most nearly resembles, as also he resembles these in lifelong dedication to his task as prophet of a social regeneration to be. It is the lasting glory of English Puritanism that it could join in one work such a creative statesman as Cromwell with so supreme a poet as Milton. [F. H.]

D. Masson: *Life of Milton and History of his Times*, 6 vols. (1859-1880); also in *Encycl. Brit.* Mark Pattison: *Milton* (Eng. Men of Letters). W. A. Raleigh: *Milton*. *Pos. Pol.* iii. 487. Engr. from life by Faithorne, N.P.G.

MODERN INDUSTRY.

OF the two forms of collective activity possible to our race, the conquest of Man and the conquest of Nature, the first was brought to systematic completeness long before the second. In the primitive ages of the world both processes went on simultaneously. The women of a primitive tribe till the soil while the men are fighting. Where the tribes of a vast plain or river valley were gathered together under a theocratic monarchy it might have been expected that, as war became less continual, industry would have taken its place as the systematic occupation of man. But to this substitution there was an insuperable obstacle. Theocratic societies were organised by priesthoods, interpreting the arbitrary will of inscrutable gods. Each of the arts of life was under the tutelage of a god, and, under pain of his displeasure, was handed down from father to son unchanged.

Under the system of hereditary caste there could be no innovation, no free play for experiment—above all, no attempt to discover uniform scientific laws, and apply them to the purpose of mastery over Nature. Even in China, where an exceptional development of the patriarchal principle on the basis of primitive fetichism had prevented the establishment of Caste, collective industry and especially industrial innovations were strongly discouraged. The *feng-shui* (local spirits of the earth) oppose the opening of a new road as effectually as a theocratic oracle. The spirit of minute concrete observation characteristic of the Chinese led them to many discoveries and inventions—as, for instance, the compass and printing: yet these, owing to the stage of social development then reached, failed to arouse anything analogous to the collective industrial activity which they inaugurated in the West. In China, as in India and in Egypt, notwithstanding the cessation of war, industry has remained individual and stationary.

In the transition from theocracy to sociocracy, begun by Greco-Roman civilisation, the ascendancy of civil over priestly government removed the theological obstacle to industrial development, after a struggle typified in the Æschylean legend of Prometheus. The rise of Greek science established the first condition of collective industry, the study of natural laws, without the knowledge of which the mastery of Nature was impossible. But the collective activity of Greek and Roman States was devoted not to the conquest

of Nature, but to the conquest of Man: industry was left to slaves.

As a moral discipline, and as a stimulus to intellectual energy, organised war has exercised a powerful influence on man's education. On the industrial arts themselves—metal-working, wheeled vehicles, the construction of military engines, and of the apparatus for maintaining or sustaining a siege—its reaction was most fruitful. The Roman State, achieving the conquest of the Western world, established, as Virgil puts it, the law of peace. It seemed that the forces called out by war could now be concentrated on the peaceful organisation of life; and to this the first two centuries of the Empire manifestly tended. The activity of the slave trade lessened; slaves settled on the soil gradually began to acquire the rights of serfs. War meantime became ennobled by the transformation of its purpose from aggression to defence of the Roman State against Gothic barbarians: continued by the Gothic and Teuton tribes who could assimilate civilisation, against the Huns and others whose invasions were wholly sterile and destructive.

Dividing the Middle Ages, from the beginning of the 5th to the close of the 13th century, into three periods, each of three centuries, we see that in the first (400-700 A.D.), the transition from slavery to serfage was accomplished: the mass of idle plebeians being cleared out of the towns, and fixed in rural districts round the feudal chief. In the second period (700-1000 A.D.) serfage disappears in cities and boroughs; the free industrial order first appears, though manufacturing industry is still limited to what is needed for the supply of immediate wants. In the third period (1000-1300 A.D.) industrial existence is definitely recognised: charters are given to towns, trades are organised in guilds; the previous emancipation of serfs had facilitated accumulation of capital. The class of employers now arises, the first condition of collective as opposed to individual industry. As feudal chiefs showed no tendency towards transformation into industrial captains, agriculture remained for centuries behind other departments of industry. Commerce took the lead. Between the Italian guilds of merchants and the Hanseatic league, the cities of the Netherlands acted as intermediaries. As theological influence decayed, and scientific study extended, the utilisation of natural forces by machinery came into prominence. The discovery of the compass enlarged the limits of navigation and prepared the way for the work of Columbus and Vasco da Gama; the invention of gunpowder, shortening military apprenticeship, dealt a fatal blow to feudalism. Finally, the great invention, which completed the fundamental institution of writing by accelerating the production of copies, secured the rapid and permanent dissemination of thought through the world, and was itself a striking example of the substitution of mechanical for human labour, destined to play so revolutionary a part in the reconstitution of society.

In the early rise of the employing class, striking illustrations were given of healthy relations between themselves and those who acted under them. Jacques Cœur and the elder Cosmo de Medici stood out in the 15th century as splendid types of the industrial chief. It has been abundantly shown by Hallam, Thorold Rogers (*Six Centuries of Work and Wages*), and others, that the condition of the labourer in the 14th and 15th centuries compared favourably with his circumstances in the nineteenth century. And yet the last five centuries have witnessed a growth of commercial enterprise, an application of science to industry, a mastery of natural forces, and a consequent multiplication of wealth, which 500 years ago no one could have dreamed of. It suffices to glance at the names mentioned in this month, and to recall the opening of the New World for Western use, the application of machinery to textile fabrics, and the control of heat as a means of mechanical motion, to appreciate the enormous increase of man's productive power. The increase of population in Western Europe has undoubtedly been extremely rapid; but it has in no way kept pace with the increase of wealth. Thus the growth of Modern Industry offers an extraordinary paradox, which those who accept it as an instalment of human progress are bound to explain.

The conditions of economic progress, clearly indicated by Comte, are two: first, that men should produce more than they consume; secondly, that the product should be such as can be stored up for a greater time than is needed for its reproduction. These conditions being observed, Capital results: making it possible to concentrate energy on objects not directly concerned with the preservation of life. That capital has increased in recent centuries at a rate far exceeding that of any previous period of man's history, no one can doubt. Had the increase been accompanied with any moral or intellectual process controlling its use and distribution, the great problem of social life might by this time have been solved. The mass of workmen might have been fully incorporated into the structure of civilisation, admitted to its intellectual privileges, and set free from mechanical labour to the degree compatible with the full enjoyment of domestic life.

But as with other departments of human life, so here, the development of human forces has preceded their control. The enormous increase of productive power placed at man's disposal during the last 150 years by the steam-engine, by textile machinery, and by the application of chemistry to the arts, has not been accompanied by any controlling or organising force. Consequently the increase of productive power, by condensing vast populations in cities of sudden growth, without settled life or certainty of constant employment, has created new social problems, as difficult as any with which human wisdom has ever been confronted.

The month of Gutenberg, as conceived by Comte, represents the full range of power over Nature which man has obtained through

abstract science and practical energy; and which will one day be used, with organisation rivalling that of the Roman State in the work of military conquest, for the action of Humanity on the planet which she inhabits. The men commemorated are not those who exercised power through the attainment of wealth, but those who taught us how to achieve dominion over Nature. We find the names of navigators and travellers who revealed the extent of our planet: of inventors who moulded matter into the slave of man's bidding: of those who measured time more accurately, or who lightened the labour of calculation: of students of light, heat, electricity, chemical affinity, who applied these forces to human purposes: of the pioneers of scientific agriculture: of men who would subdue the waters of the earth, nay, even its atmosphere, to the service of man.

Intellectual force taking precedence of all forms of material force, the presidency of the month is given to the name identified with the invention which at once disseminates intellectual products and secures their permanence—the invention of the printing-press.

The groups allotted to the four weeks of the month are thus distributed :—

The first contains the names of the great travellers by land and sea who enlarged man's knowledge of his planet: Columbus taking the first place. The influence of commerce on political government is typified by Jacques Cœur and Gresham: the application of abstract science to practical navigation by Napier and Briggs.

The second week represents the arrangement of matter in forms suitable for human service by great inventors. Vaucanson presents the highest degree of skill attained in the imitation of complex living motions by dead matter. With him are associated the inventors of textile machinery, of the chronometer and the telegraph.

In the third week the control by man of natural forces is indicated, especially of the behaviour of gases under pressure and their expansion by heat. With Watt, the principal inventor of the steam-engine, are associated not merely his forerunners, but also the men of science of whose discoveries his invention is the practical application. Dalton, whose discovery did so much for the application of chemistry to the industrial arts, is also included.

The last week, over which Montgolfier presides, indicates industrial discoveries likely to prove more fruitful in the future than in the past: when the earth's atmosphere will be accessible to man—already in large part accomplished; when her rivers will be brought to do his work; when her plants and animals will be systematically studied and modified; and when the common arts of life will be transformed by a keener sense of artistic beauty. [J. H. B.]

Phil. Pos. v. 54, 55; vi. 57. *Pos. Pol.* ii. ch. ii.

GUTENBERG, b. 1410, d. 1468.

Johann GUTENBERG was born of noble parents in Mainz. His father's name was Gänzfleisch : but he took the name of his mother. In 1420 his family were exiled by the democratic party in the town, and took refuge in Strasburg. The boy showed a mechanical genius, and after some years entered into partnership with Andrew Dritzehn in the business of polishing stones and manufacturing mirrors. In 1438 he seems to have been engaged with Dritzehn and the brothers Heilmann in block-printing.

Printing from engraved wood blocks had been in use for more than half a century, especially in Germany and the Low Countries. It was employed in connection with pictorial engraving to explain such series of pictures as the *Dance of Death*, *Biblia Pauperum*, etc., but was obviously inapplicable to works of considerable length. The expedient of making the types for each letter moveable may be compared both for ingenuity and for momentous result with the Phœnician invention of the alphabet as contrasted with ideographic writing. To whom this expedient is due has been vehemently debated, and still remains uncertain. It is said that in 1445 a short Latin Grammar of Ælius Donatus, and the *Speculum humanæ salvationis*, were printed in Haarlem with moveable types by Lourens Janszoon Coster, and that shortly afterwards a servant of Coster stole these types and took them to Mainz, where they came into the possession of Gutenberg. This story has been the theme of endless controversy, and the materials for its proof or disproof are insufficient. It rests mainly on the authority of Junius, who wrote a century after the supposed event.

Into this tangled dispute no attempt will be made to enter here. For industrial history the essential point is that, midway in the 15th century, it was made possible, in the city of Mainz, to substitute for the slow and fallible process of copying manuscripts, their reproduction, to any number desired, through the impress of ink upon paper by moveable types. These types were at first made of wood. But this material not being sufficiently durable, metal types were substituted. To cut, however, a sufficient number of letters, whether in wood or in metal, for the printing of even a single folio page, was a toilsome and expensive procedure. The solution at last reached was to execute a model of each letter in hard metal, of which a mould could be made. Fusible metal poured into the mould could reproduce as many copies of the letter as were wished for : and thus perfect uniformity would result.

While carrying on this process Gutenberg was associated with John Fust, a merchant of Mainz, who procured him the necessary funds, amounting to 1600 florins, and with Peter Schoeffer, of Gernsheim, a man skilled in metal-working, to whom the details, if not the conception of type-founding are probably due. In 1455 appeared the first result of their combined labours, the Latin Bible.

The expense, as well as toil, had been very great. In the account given of the matter by Abbot Trithemius, who heard it personally from Peter Schoeffer, 3000 florins had been spent before the first three leaves of the book were struck off. Money disputes arose between Gutenberg and Fust. Fust established his claim to the printing-plant, and with the help of Schoeffer continued to use it, till the sack of Mainz, in 1462, by Adolphus II. In 1463, through the help of a friend, Humery, a new press appears to have been established for Gutenberg, who, however, died a poor man five years afterwards, February, 1468.

Within sixteen years from the date of the first printed Bible, the art of printing was practised in the principal cities of Germany and Italy. Strasburg was the first, after Mainz, to adopt the process. In 1466 we find it at Cologne, in the following year at Rome. By 1471 it was established in Venice, Florence, Naples, Bologna, and Milan. England, still involved in the wars of the Roses, was late in the race. The date of the first English printed book is 1477.

The effect of printing was to establish the continuity of the Western world with Greco-Roman traditions, and thus with the previous life of Humanity, which the rise and progress of the Mediæval Church had for centuries disturbed. The expresssion, "humane letters" (*literæ humaniores*), represents accurately what took place. The thoughts of men to whom man's life and man's world were the things best worth living for, and who revered the Roman State as the best security for peaceful progress—men like Cicero and Virgil, and with them all the poets, historians, and thinkers of Greece and Rome—became henceforth familiar household words. This at least was the case with a large and powerful section of society. Those to whom Greek and Latin books still remained sealed were at least made familiar in translations of the Bible with the sources of their own religion: with what momentous results the history of the next two centuries was to show. To mediæval theology the invention of printing dealt as powerful a blow as the feudal system received from the invention of gunpowder, rendering the costly armour of the privileged classes useless in battle.

Rightly, therefore, does this invention take precedence of other forms of Modern Industry. In the long run the world is governed by ideas; material force being needed only to maintain order till ideas have taken hold of men and rendered them self-governing. The machine that disseminates thought is therefore the greatest of machines. Like all other forces, the power it wields has been and will be misused. But it offers the means whereby the masses of citizens can participate actively or passively in the acts of the State of which they are members. And its right use in the end predominates over the wrong. [J. H. B.]

Encycl. Brit. Article TYPOGRAPHY. W. Y. Ottley: *An Enquiry concerning the Invention of Printing*, 1863. Gutenberg was buried in the Franciscan Church, Mainz.

MARCO POLO, b. 1254, d. abt. 1324.

Marco POLO, the earliest and perhaps the greatest of travellers, came of a noble trading family of Venice, where he was born in or about 1254. About the time of his birth his father, Nicolo, and his uncle, Maffeo, had gone on a business venture to the East, seeking to avail themselves of the route by the Caspian and Black Seas, then held by the Tartars. They visited the court of Kublai Khan, who in 1259 had succeeded Mangu as "The lord of all the Tartars in the world," and whom they found willing to open his vast dominions to European merchants. Bearing from the Khan an urgent message to the Pope to send out missionaries, they returned to Europe for a short time, and in 1269 they set out on a second journey to the East, when Marco, then a boy of 15, accompanied them.

Starting from Acre, they travelled by way of Bagdad to Ormuz; thence they struck landwards in a north-easterly direction, ascended the Upper Oxus to the Pamir plateau, passed through Kashgar, Yarkand, along Lake Lob, over the great Gobi desert, and so to Shangtu, a pleasure-residence of Kublai Khan, to the north of Cambalu (Pekin), which had lately become the Tartar capital. For about seventeen years they remained with the Khan, who showed them great respect. Marco acquired several of the Tartar dialects, and became by his knowledge of native customs a valuable agent for foreign missions. He was thus employed in Cochin China, India, and elsewhere, and won great favour by his careful observation of the countries through which he travelled, the Khan considering as foolish and ignorant other ambassadors who had nothing to report save the special message intrusted to them.

In 1292 the Polos, who had meanwhile accumulated much wealth in gold and jewels, were allowed to return. Sailing from Chinchen, they passed by Sumatra through the Straits of Malacca to Ceylon, and thence to Ormuz. They reached Venice in 1295. There Marco's wondrous tales earned for him the name of Messer Millione. In a sea-fight between the Venetians and Genoese, in 1298, he was taken prisoner, and he beguiled his captivity by recounting the story of his travels to a fellow-prisoner, Rusticiano, of Pisa, whose work, originally dictated by Marco and written in French, forms "The Book of Ser Marco Polo the Venetian, concerning the kingdoms and marvels of the East." Released in 1299, Marco Polo returned to Venice, where he was engaged in business until his death. His work has outlived a period of scepticism. His wide information proved invaluable when Columbus and others were preparing to seek new routes to India; the geographers of the 16th century drew largely from it; and its general accuracy is no longer questioned.

[G. P. M.]

Sir H. Yule: Marco Polo's *Kingdoms of the East* (Eng trans.).

CHARDIN (*Sir John*), b. 1643, d. 1713.

Jean CHARDIN, of a Huguenot family, born in Paris, 1643, was brought up to his father's trade of jeweller. About the age of twenty he went on a trading journey to the East, where he spent about three years, chiefly in Persia. On his return he found that, as a Protestant, he was shut out from advancement, and resolved to go back to the East, where, as he says, "without being forced to change my religion I could not fail to satisfy a moderate ambition; for in these parts commerce is a profession so honourable that even the kings themselves openly adopt it." Setting out in 1671 he reached Ispahan after an adventurous journey of nearly two years, and remained in Persia for several years, following the court of Solyman III., visiting nearly every part of the kingdom, and combining the pursuit of business with the study of the language, history, and customs of the people.

He returned to Europe by the Cape of Good Hope, and settled in London, where he immediately found favour. Ten days after his arrival he was knighted by Charles II.; he was made court jeweller; in the following year he was elected a Fellow of the Royal Society; and in 1683 he was despatched to the Hague and Amsterdam as agent of the English East India Company. In 1686 and 1711 he published the records of his travels in the East (included in the Positivist Library), a work which has since been recognised as of the utmost value for the accurate and complete account which it gives of the language, religion, and manners of Persia. Montesquieu and Gibbon frequently cite it as an authority, and Sir W. Jones refers to its author as "the great traveller Chardin, whom every Orientalist must always mention with reverence." Sir J. Mackintosh says:—"The faculty of seizing by a rapid and comprehensive glance the character of a country and people was possessed in the highest degree by Chardin, and secures him an undisputed supremacy for that department of literature." By his book, Persia became the most early known of all the Eastern nations. Extracts from it appear in most of the chief collections of travels, and a completed edition was published in Paris in 1811 (10 vols. edited by Langlès).

Chardin died near London in 1713, and was buried at Chiswick. A memorial tablet is erected to him in Westminster Abbey, with the words, "*Nomen sibi fecit eundo.*" [J. K. & G. P. M.]

Dict. of Nat. Biography. An abridged trans. of *Sir John Chardin's Travels* is published in Pinkerton's *Voyages and Travels*, vol. ix. Portrait, Ashmolean Museum, Oxf.

JACQUES CŒUR, b. abt. 1395, d. 1456.

A worthy type of the industrial patrician, says Comte (*Pos. Pol.* iii. 462), was furnished by two eminent men of the 15th century, each of whom showed by his conduct that pacific activity may go

along with the completest social devotion, and even with profound aptitude for civic government. The one was Cosmo de Medici the elder, the other Jacques Cœur.

Born at Bourges, the son of a fur merchant, Jacques CŒUR sought his fortune in the Levant trade, then commanded by the rival cities of the Mediterranean; and so astonishing was his success that his yearly gains were spoken of as greater than those of all the other merchants put together. Charles VII., "*le bien servi*," recognised his financial genius. He was made Master of the Paris Mint in 1463; a year later he became Minister of Finance (*argentier*); and then for fifteen years he directed French finance. During the English occupation the French coinage had become debased and subject to frequent and sudden fluctuations, disturbing the public administration as well as private business. Property was not secure from violence. Taxation and public offices were being fraudulently used as a means of enriching individuals rather than the State. Jacques Cœur, with a willing king, brought order out of chaos. A chronicler, referring in wonder to the peaceful revolution, says, that a man might now, without any risk, traverse the whole kingdom, his hands full of gold. Jacques Cœur "restored the coinage," says Michelet, "discovered in finance a thing hitherto unheard of, namely, justice, and held that for kings, as for everybody else, the way to get rich is to pay one's debts."

Honours were showered upon him. He was ennobled, was sent on important embassies, and saw his son made Archbishop of Bourges. Meanwhile his riches grew, so that he was able, out of his own purse, to advance to the King for the English war a sum of which the value to-day would be about a million sterling; every needy courtier was his debtor; he had purchased vast domains; he was building in his native town a mansion, still remaining, whose splendour was the wonder of his time. Suddenly he fell, at the height of his prosperity. In 1451 he was arrested on a charge of poisoning Agnes Sorel, the King's mistress. The charge was abandoned, but his prosecutors, envious of his fortune, found others in its place—selling arms to the infidels, giving up a Christian slave who had taken refuge in one of the ships, and maladministration of various kinds. After a semblance of trial, he received sentence of imprisonment with confiscation of his property. He escaped to Rome in 1455, where he was warmly welcomed by Pope Nicholas V. Joining an expedition against the Turks, he died in 1456 in the island of Chios.

[G. P. M.]

P. Clément: *Jacques Cœur et Charles* VII.

GRESHAM (*Sir Thomas*), b. 1519, d. 1579.

Like Jacques Cœur, Sir Thomas GRESHAM combines the type of the great merchant with that of the servant of the State. He came of an old Norfolk trading family, which was already well

known for its munificence and public services. His father, Sir Richard Gresham, who was among the financial advisers of Henry VIII., and became Lord Mayor in 1537, gave him a University education before placing him in business. After serving as an apprentice for eight years, whereby alone, as he says, one might come by the experience and knowledge of all kind of merchandise, he joined his father as a mercer in the Flemish trade, dealing chiefly in woollen clothes.

In 1551 he was appointed the King's Merchant in the Low Countries, an important office, in which he had to act as a sort of financial ambassador during the reigns of Edward VI., Mary, and Elizabeth. His duty was to negotiate loans, to watch over the public credit abroad, and to keep the King's Council informed of all matters of political interest; and while thus engaged he was kept constantly moving between London and Antwerp, then the commercial centre of Europe. It is recorded that within two years he made the journey no less than forty times.

When he entered the public service there was great financial embarrassment. Henry VIII.'s wars had compelled the raising of large loans from foreign merchants, which from time to time had to be renewed on ruinous terms; the expedient of debasing the coinage had been resorted to, and the King's credit had fallen very low. Gresham urged that the King's honour and profit alike required that some other ways should be taken for the payment of his debts than to force men from time to time to prolong them. By various devices he succeeded in raising the rate of exchange and discharging the debts on favourable terms. He pressed upon the Council the necessity of restoring the coinage standard, for its debasement caused all the fine gold to be conveyed out of the realm; and through his efforts an improvement in the coinage was begun in 1552 and completed in Elizabeth's reign. The principle that bad money drives out good money of the same metal is now known as the Gresham Law.

The Royal Exchange was founded by Gresham in 1566, the London merchants having up to that time met without shelter in Lombard Street. (In Burgon's *Life*, ii. 344, are prints of the old building, which was destroyed in the fire of London.) Another memorial of his public spirit was the establishment of Gresham College. Under his will his house in Bishopsgate Street was eventually handed over with an endowment to the London Corporation and The Mercers' Company, for the residence of teachers in divinity, astronomy, music, geometry, law, physic, and rhetoric. [G. P. M.]

J. W. Burgon: *Life and Times of Sir T. Gresham*, 2 vols. 1839. His tomb may still be seen in St. Helen's, Bishopsgate. Portrait by A. More, N.P.G.

VASCO DA GAMA, b. abt. 1469, d. 1524.

After the overthrow of the Mongol dynasty in China, intercourse between the East and West was seriously hindered. The Chinese resumed their habits of exclusiveness, while the rapid spread of Mohammedanism held Christian Adventurers in check. Thus came an urgent need to find a sea-route to India; in this enterprise Portugal led the way. Under the direction of Prince Henry the Navigator numerous expeditions were organised along the western coast of Africa, gradually dispelling the terrors which surrounded that unknown region. John II. continued the work; and in 1487 Bartholomew Diaz sailed as far as the Cape of Good Hope.

Stimulated by Columbus's discovery, King Emanuel in 1497 equipped three vessels to make the passage to India, and chose as leader VASCO DA GAMA, several generations of whose family had with distinction served the Kings of Portugal. Embarking near Lisbon in July, Da Gama doubled the Cape on the following October or November. From the King of Melinda (north of Zanzibar) he obtained pilots, and thence crossed to Calicut, on the Malabar Coast, which he reached May 17th, 1498. Calicut was one of the chief stations for the overland trade; and the arrival of the Portuguese ships awakened jealous resentment in the Moorish merchants already peacefully established there. But Da Gama, in addition to an unconquerable will, possessed a whole armoury of strategic resources. Though his relations with the ruler and people of Calicut underwent many vicissitudes, he was allowed to trade, and returned to Portugal to give an account of his expedition.

He revisited India in 1502 to avenge a massacre of settlers in the new trading-station, and again in 1524 as Viceroy. During the quarter of a century that had then elapsed since his landing at Calicut, the Portuguese had pushed their way with astounding energy. Their ships sailed from the Cape of Good Hope to the extreme of China (not yet identified as the *Cathay* of Marco Polo), and a chain of forts and factories guarded them from attack, this great extension, ultimately a source of weakness, being carried out with unscrupulous cruelty. In response to numerous complaints that reached him, Emanuel sent Da Gama to restore order. "During the short months of his rule," says Gaspar Correa, who gives a detailed account of his voyages, "he had very full inquiry made upon all officials, saying that he would learn by what devices they had enriched themselves; and he went on examining diligently into the evils, so that without any doubt he put India into a very straight road for the good of the King's service, and for the good of the people, and above all, very strict justice, which had been perverted." He reached India in September, 1524, and died on Christmas Day.

Vasco da Gama has been immortalised in the *Lusiad* of Camoëns, "the epic," as it has been described, "of the modern system of universal commerce, founded on the discovery of the sea-way to India." That discovery, and the opening up of the Western passage by Magellan, revolutionised European trade, shifting its centres to Holland and England, and leading to the decline of the Italian cities. [G. P. M.]

H. E. J. Stanley: *Three Voyages of Vasco da Gama* (Hakluyt Society, 1869). R. S. Whiteway: *The Rise of Portuguese Power in India. Pos. Pol.* ill. 463. Da Gama was buried in Cochin, but his remains were later brought to Portugal and now lie at Belem near Lisbon. Portrait, Nat. Museum of Fine Arts, Lisbon.

MAGELLAN (*Fernão de Magalhães*), **b. abt. 1470, d. 1521.**

Fernan MAGELLAN, a Portuguese of noble birth, was brought up in the household of Queen Leonora, wife of John II. He served for a time under Albuquerque, the greatest of the Portuguese Viceroys of India, and is said to have been present at the capture of Malacca in 1511. Failing on his return home to meet with due recognition of his claims, he migrated to Seville in 1517, exchanged King Emanuel's service for that of Charles V., and thereby roused a feeling of resentment which long survived him.

By the bull of 1493, issued after the return of Columbus, Pope Alexander VI. had granted to Spain all lands lying west of a line (drawn from pole to pole) 100 leagues—in 1494 altered to 370 leagues—west of the Azores. Magellan declared his belief to Charles that the Moluccas fell within the Spanish limit, and, in spite of Portuguese intrigues, he succeeded in obtaining the command of a fleet with instructions to proceed westward on a general voyage of discovery. Starting in August 1519, he sailed from the Canary Islands to Brazil, whence, coasting southwards, he passed Rio de Janeiro, Rio de la Plata, and Port St. Julian; and then, through the straits which now bear his name, he ventured out on the unknown expanse of the Pacific Ocean. He reached the Philippine Islands in the spring of 1521. At Mactan, one of that group, on April 27, Magellan ("our mirror, light, comfort, and true guide," as he is called by his biographer, Pigafetta, who accompanied the expedition) was killed in a fight with the natives. The fleet, pursuing its course, reached Borneo in July, and the Moluccas in November. One of the two ships, to which it was by this time reduced, went back by the Straits of Magellan; the other proceeded round the Cape of Good Hope, and arrived at San Lucar, September 6, 1522, the first ship to sail round the world.

Magellan dispelled the prevailing belief that America was part of a great continent stretching to the South Pole, though there remained a doubt whether his straits might not be the only way to the Pacific. The feat which his courage and knowledge of navigation made possible was vainly attempted by other Spanish sailors

after his death, but was not again achieved till Drake's time, more than half a century later. [G. P. M.]

H. E. J. Stanley: *First Journey round the World by Magellan*, trans. from the account of Pigafetta (Hakluyt Society). F. H. H. Guillemand: *The Life of Ferdinand Magellan*. He is buried at Mactan. Portrait, Naval Museum, Madrid.

NAPIER (*John*), b. 1550, d. 1617.

John NAPIER, Baron of Merchiston, was born at Merchiston, near Edinburgh, in 1550, his father, Archibald, being less than seventeen years older. He entered the University of St. Andrews at eighteen, and left it, without graduating, three years afterwards, to complete his studies on the Continent. He was keenly interested in theology, in politics, and in practical agriculture. His first publication was a commentary on the Apocalypse. In 1588 he was chosen by the Presbytery of Edinburgh one of its Commissioners to the General Assembly. He carried on the Merchiston system of tillage, begun by his father, in which salt was used as manure a system of which his son Archibald has left a description.

Meantime Napier was following with keen interest the astronomical discoveries of his time, and was impressed with the practical obstacles to further progress presented by the labour of the long calculations which they involved. He had devoted much attention to pure mathematics, and his treatise on arithmetic and algebra, which still remains unpublished, shows him to have been abreast, and in some ways in advance, of the foremost algebraists of his time. But his best energies were given to the construction of methods for reducing the labour of computation. His *Rhabdologia*, which cannot here be explained further than by saying that it was a calculating machine of extremely simple construction, known as Napier's Rods, or Bones, was his first effort in this direction; though it was not published till the year of his death. But the great work of his life was the invention and construction of a logarithmic table.

It had long been known that addition of the numbers expressing the powers of quantities corresponded to multiplication of the quantities when raised respectively to these powers. The series, 2, 4, 8, 16, 32, 64, 128, 256, 512, 1024, etc., represent the 1st, 2nd, 3rd, 4th, 5th, 6th, 7th, 8th, 9th, and 10th, etc., powers of 2. Adding together the indices of the 3rd and the 5th powers we get the index of the 8th power. That is to say, $2^3 \times 2^5 = 2^8$; the same result as would be obtained by multiplying 8 by 32. In this example, 3, 5, and 8 are said to be the logarithms of 8, 32, and 256 to the base 2. What, however, would be the logarithm of any number, such as 21, between 16 and 32? or of any number, such as 150, between 128 and 256? Evidently, in the first example, 3 and some fraction, and in the second, 7 and some fraction. If, then, the logarithms of all numbers could

be computed, to any base that might be agreed on, and arranged in a table opposite to the series of natural numbers, the operations of multiplication and division of the numbers might be performed by addition and subtraction of their logarithms. Further, multiplication of the logarithms would correspond to involution, division to extraction of the root, of the natural numbers.

The base for logarithms now agreed on is 10; and as $10^0 = 1$, the logarithm of 1 is called 0, that of 10 being 1. It is commonly said that the base of Napier's system is 2·71828, etc., a mode of statement which renders the filiation of discovery quite unintelligible. If Napier's two works be searched, it will be found that the fixed quantity taken for a base is described in quite a different way.

He conceived two lines, along each of which a point moved. The first point moved with uniform velocity, describing equal spaces in equal times, the line being of infinite length. The other line was finite, and represented the radius of the quadrant: the point, starting with the same velocity as the other, moved with uniformly diminishing speed, cutting the line, and in each successive period cutting the remainder of the line, in a fixed proportion. Each of these diminishing remainders corresponded to the sine of an angle in the passage from 90° to 0°. The sum of equal spaces cut off on the endless line while the radius had decreased to any given sine, was the logarithm of that sine. (See Hobson's book.)

It would be impossible in the limits of this notice to describe fully Napier's method of constructing his table. Taking the sine of 90°, or radius, as ten millions, he subtracted from it one ten-millionth part, and the same proportion from the remainder; repeating the process till he had got a very large array of numbers between 10,000,000 and 5,000,000 arranged in this diminishing geometrical proportion, true to several places of figures, and neglecting the slight error that remained. The logarithm of one of these being found, the logarithm of the next followed in simple arithmetical proportion.

Tables giving the numerical value of the sines for each minute of the quadrant had been formed more than a century before Napier's time, by Purbach and Regiomontanus. With these, of course, the terms of Napier's geometrical series would not precisely agree. But Napier describes very simple methods of passing from the logarithm of any term in the latter to that of the table sine most nearly approaching it; so that ultimately his table of logarithms was formed for the sine of each minute.

Napier's description of his table was published in 1614. The method of construction was described in another work published two years after his death by his son Robert. The value of the invention was at once recognised by the best mathematicians of England [see BRIGGS], and on the Continent by Kepler. On its importance to practical astronomy, navigation, land-surveying, and all pursuits involving much calculation, there is no need to enlarge; it is in every sense a potent industrial engine.

Napier died on 4th April 1617. He was buried in St. Cuthbert's Churchyard, Edinburgh. [J. H. B.]

Napier's *Construction of Logarithms*, long one of the rarest books in Europe, has been translated by W. R. Macdonald (1889). Mark Napier: *Memoirs of John Napier* (1834). *Napier Tercentenary Memorial Volume* (1915). E. W. Hobson: *John Napier and the Invention of Logarithms* (1914). W. W. Rouse Ball: *A Short Account of the Hist. of Mathematics.* Several portraits; one, Edin. Univ.

BRIGGS (*Henry*), b. 1561, d. 1631.

Henry BRIGGS was born at Warley Wood, in the parish of Halifax, in 1561. He entered St. John's College, Cambridge, of which he became a Fellow, and was appointed Lecturer on Physics, on Linacre's foundation. Afterwards he obtained the Gresham Professorship of Geometry, which he held for twenty-three years. In 1616 he became Savilian Professor of Astronomy at Oxford, and was attached to Merton College, where he died on the 26th January 1631, and is buried in the chapel of the college, beneath an engraved slab.

He wrote several mathematical and astronomical papers; but in one of his letters, dated March 1615, he speaks of himself as occupied with the "noble invention of logarithms," produced in the previous year by Napier. He took the trouble to visit Napier twice; partly to express his grateful admiration, and also to suggest an important improvement in the construction of the logarithmic table, consisting, practically, in the adoption of 10 as the base to which they should be computed. It appears clearly enough from Briggs' account of their interview, prefixed to his *Arithmetica Logarithmica*, that Napier had already hit upon the same thought, and that indeed he suggested to Briggs a more effective mode of carrying it out. On the second interview, in1616, Briggs produced a specimen of the new mode of computation, published in 1617 under the title of *Logarithmorum Chilias Prima*. The remainder of his life would seem to have been devoted to the execution of the work. His *Arithmetica Logarithmica*, published three years after his death, contains the logarithms of 30,000 natural numbers to 14 places of figures, besides the index.

[J. H. B.]

Dict. of Nat. Biography. See also NAPIER.

LACAILLE (*Nicholas Louis de*), b. 1713, d. 1762.

Nicholas Louis de LACAILLE was born at Roumigny, near Rheims, in 1713. His father, who had been a soldier, studied mathematics, and inspired his son with a taste for them. He was sent to Paris in 1729 to pursue his studies, and subsequently entered at the College of Navarre, preparatory to his becoming an ecclesiastic. But his passion for astronomical studies prevented him from proceeding beyond deacon's orders, and he obtained a post under Jacques

Cassini in the Royal Observatory. He was employed with Cassini de Thury, in 1739, in verifying the meridian throughout France, and appointed Professor of Mathematics in the Collège Mazarin. Two years later he became adjunct astronomer in the Académie des Sciences. He then proceeded to the great work of his life—the verification of the catalogue of the stars. After completing a series of seven years' observations on the stars in the observatory of Mazarin College, he wished to make a similar survey of the southern hemisphere. To do this he went in 1750 to the Cape of Good Hope for two years, during which time he determined the places of about 10,000 stars never visible in our latitude, and added much else to astronomical science. He ascertained some important facts relative to the figure of the earth by the mensuration of a degree on the meridian 32° south of the equator, and fixed the situation of the Isle of France (Mauritius) and of Bourbon (Réunion).

Delambre says that his observations will compare favourably in accuracy with those of his most celebrated contemporaries who had more perfect instruments. Again, he says: "Having reviewed and verified with new means a great part of the labour of Lacaille . . . I have felt at every step with which I traced his progress increased admiration for the savant who will ever be the honour of French astronomy."

Lacaille is the author of works on geometry, astronomy, mechanics, and optics, a set of very correct solar tables, and other treatises. His numerous papers are in the memoirs of the Académie des Sciences. Lacaille "made the earth herself give final and conclusive testimony by the foot-rule to a demonstration which had already been affirmed over and over again by the heavenly bodies." By doing this he confirmed the Newtonian theory of the earth's figure as an oblate spheroid. His death in 1762 interrupted one of his greatest works —a *General History of Astronomy*. [J.K.]

Delambre: *Hist. de l'Astronomie.*

DELAMBRE (*Jean Baptiste Joseph*), b. 1749, d. 1822.

DELAMBRE was born at Amiens, where he received his earliest education from Delille, the poet, then teaching at the College. Pupil and preceptor became friends for life. Delambre sought to support himself, at the close of his academical career, by the exercise of his pen and especially by translations made from the Latin, Greek, Italian, and English languages. The difficulty of his task was increased by weak eyes, due to an attack of small-pox in infancy. It was not until 1780 that he commenced the study of astronomy, when he became the friend and pupil of Lalande, whose writings he enriched with a commentary. Eight years after the discovery of Uranus, in 1790, Delambre published the tables of the planet, although in that period it had performed but a small part of its 85 years' course. He

also constructed tables of Jupiter and Saturn and the satellites of Jupiter, which, with several other treatises, procured him a reception into the Institute. From 1792 till 1799 he was engaged with Méchain in measuring an arc of the meridian from Barcelona to Dunkirk, the results of which he gave to the world in his *Base du Système Métrique Décimal*, 1806-10. After being made a member of the Bureau des Longitudes, he was in 1802 appointed Inspecteur Général des Études, and in the following year Perpetual Secretary of the Class of Mathematical Sciences. His History of Astronomy is a work not merely of prodigious research but of philosophic insight. The most important of his results was to restore to Hipparchus the honour due for discoveries which had for centuries been attributed to Ptolemy.

Delambre distinguished himself as Perpetual Secretary of the Institute by the justice and elegance of his *Éloges*. He is buried in Père La Chaise, Paris. [J. K.]

Cuvier: *Recueil des éloges historiques*. R. Grant: *Hist. of Physical Astronomy*. Portrait by Boilly.

COOK (*Captain James*), b. 1728, d. 1779.

James COOK, born at Marton, in Yorkshire, the son of an agricultural labourer, received no advantages of early education ; his native talent and indefatigable industry made him the most accomplished navigator of his time.

Tired of being a shop apprentice, he ran away to sea at the age of fourteen. After serving for some years on a merchant vessel and rising to be mate, he volunteered for the Navy in 1755, in order to escape the press-gang, and took part in the French Canadian war, gaining distinction from the accuracy of the charts of the St. Lawrence, which he was chosen to prepare. They remained in use long afterwards. When peace was declared, he spent several years in various surveying expeditions, until the great opportunity of his life came, in 1769. He was appointed to the dual leadership, as captain and scientific director, of an expedition to observe from Otaheite the predicted transit of Venus. During this voyage, after successfully fulfilling its main purpose, Cook spent six months in a careful survey of the coast of New Zealand, which he proved to consist of two islands, and then in tracing the Australian coast northwards. Passing through Torres Straits, he completed the work of the Dutch explorers by proving the separation of New Guinea from New Holland (Australia).

Cook's second voyage, which began in 1772, was made in quest of the great southern continent, in whose existence every early traveller believed. It was a hopeless mission, which, however, resulted in nothing less than the circumnavigation of the globe near the Antarctic Circle. The voyage, which occupied three years,

is notable for the successful effort of Cook to keep his crew free from scurvy. Out of more than 100 men he lost only four, three by accident: an achievement that he regarded as his greatest. In 1776 he set out on his third and last voyage, which, likewise futile in its main purpose (the discovery of a north-western passage round the American continent), led to the exploration of the North Pacific. It cost the great explorer his life. Misunderstandings with the natives of Hawaii provoked a conflict, in which he was killed, February 14, 1779. We have of Cook an excellent portrait by Dance.

Cook's *Voyages*, placed in the Positivist Library beside those of Chardin, form one of the most instructive and interesting of all the records we possess of man's observations of the planet and its inhabitants—a veritable monument of strenuous valour and sympathetic insight. The extent of the coasts which he surveyed surpasses that traversed by any other navigator. The eastern coast of New Holland, 2000 miles in extent, was totally unknown till he traced it. He also circumnavigated New Zealand, the eastern and southern parts of which were quite unknown. New Caledonia and Norfolk Island were both discovered by him, and the New Hebrides first assumed a definite shape in our maps. But his merit is not more conspicuous for the extent of his discoveries than for the accuracy with which his observations were made. His surveys afforded the materials for scientific geography. He adopted in practice every improvement suggested during the progress of science, and was never satisfied until the errors of his calculations were reduced to a minimum.

Cook, it has been well said, has written his name on the circumference of the globe. Intrepid with reflection, his knowledge equalled his daring, and his daring was equal to his prudence. But great as was his genius, his humanity was as great. He preferred, he said, the renown he had acquired by giving sailors the means of preserving their health, to that which all his discoveries had brought him. He received honour and fame worthy of his deeds both at home and abroad. La Pérouse, the French navigator, Crozet, the historian of Marion's voyage, speak of Cook's accuracy of observation as marvellous. It is an interesting fact that during the war of 1779, at the instance of Turgot, orders were issued to all commanders of French ships to treat Captain Cook and his squadron on the high seas everywhere as those of a friendly neutral. [J. K. & G. P. M.]

A. Kitson: *The Life of Captain James Cook* (1911). Walter Besant: *Captain Cook. Dict. of Nat. Biography.* Cook: *First Voyage*, 3 vols. 1773; *Second Voyage*, 2 vols. 1777; *Third Voyage*, 3 vols. 1783; often reprinted in shorter form. *Pos. Pol.* iv. 452. A statue of Cook has recently been erected in the Mall, near the Admiralty, London. Portrait by Dance, Greenwich Hosp.; by Webber, N.P.G.

TASMAN (*Abel Janssen*), b. abt. 1600, d. after 1645.

The Dutch confess with some self-reproach that they know hardly anything of the life of Abel Janssen TASMAN, their greatest explorer. He was born at Horn, and entered the service of the Dutch East India Company, which had been formed in 1602. Step by step the Dutch, then rising to commercial supremacy, were displacing the Spaniards and the Portuguese, and were seizing the bulk of the trade with the East Indies ; and, in view of future colonisation, they were desirous of obtaining trustworthy knowledge of the Australian continent, the coast of which had been already touched on several occasions. In 1642 Tasman (who shortly before seems to have taken part in a voyage to the Pacific) received from Van Diemen, the Governor-General, the command of an expedition to survey the coast of Australia and ascertain its extent. In the course of his voyage, which lasted a year, he discovered Van Diemen's Land (now named Tasmania) and New Zealand, both of which he believed to form part of the continent. It was not till the end of the 18th century that Van Diemen's Land was known to be an island. In 1643 Tasman was sent on another expedition, in which, closely following the coast on the north and north-west, he established the continuity of the continent as far as Dirk Hartog's Island. The Dutch East India Company, possessing a monopoly of trade which they could not effectively use, and anxious to keep from rival nations the surveys made for them, did not publish Tasman's reports, though extracts from his journal of the first voyage afterwards appeared, and are to be found in Pinkerton's and other collections of travels.

[G. P. M.]

R. H. Major : *Early Voyages to Terra Australis* (Halkuyt Society, 1854).

COLUMBUS (*Christoforo Colombo*), d. 1506.

Christopher COLUMBUS, the son of a wool-carder, was born in the Genoese territory about the middle of the 15th century. The exact date of his birth is uncertain, as authorities vary from 1430 to 1455. The year 1446 seems to be the most probable. Some doubtful mention is made of his spending a short time at his father's trade and of his studying at Pavia, but before he was fifteen he had gone to sea. "At a very tender age," he wrote in 1501, "I took to navigation, and have continued it ever since : an art which fills whosoever follows it with a desire to know the secrets of the world ; and these forty years past have I been familiar with every place to which men sail to-day." He knew the sea from the Levant to Iceland, and may have taken part, as did his brother Bartholomew, in some of the Portuguese expeditions along the West African coast. At any rate, from the charts and journals of Palestrello, one of Prince Henry's

navigators, whose daughter he married, he would have learned the progress and difficulties of the Portuguese movement southwards. It had been slow, and its end was uncertain. After half a century's persistent endeavour the Gulf of Guinea had been reached; what might lie beyond was unknown. In this uncertainty Columbus formed the bold idea of reaching India by sailing to the west over the open sea, an enterprise for which the way had been prepared by the recent perfecting of the astrolabe.

Ferdinand Columbus, writing his father's life, tells us how deliberately the project was reasoned out. The sphericity of the earth made it certain that India could be reached by moving westward; the space between the Cape Verde Islands and the eastern lands known to the ancient geographers (whose opinions Columbus carefully studied in the *Tractatus de Imagine Mundi* of the Cardinal Pierre d'Ailly) was estimated at the most to be only one-third of the circuit of the globe, and the space actually to be traversed would probably be far less, as the eastern limit of land had never been reached; many writers had indicated, some vaguely and some with curious definiteness, the existence of a western land; and seamen's tales were to the same effect. Columbus exhausted all that books and men had to tell on the subject. He received much encouragement from Toscanellli, of Florence, who wrote a letter approving of the project, and sent a chart of the world, based largely on Marco Polo's travels, and showing the eastern coasts of Asia within easy reach of Western Europe. "The world is not so large as vulgar opinion makes it," says Columbus in the account of his last voyage; and this was the chief error in his calculation. He estimated the surface of the globe at about a third of its actual extent.

For many weary years Columbus had to carry his project from court to court, labouring in vain to convince cosmographers that it was not absurd, priests that it was not heretical, and princes that it was worth the expense. At length, in 1492, having failed in Portugal, and when after seven years of application he was on the point of quitting Spain in despair, Queen Isabella was won over by his arguments of the glory which the expedition would throw upon the sovereign who sent it out, of the service which would be done by promulgating the Christian faith among new nations (a consideration on which in his accounts of his voyages Columbus dwells constantly and with evident sincerity), and of the great riches to be found in the lands beyond the sea.

On August 3, 1492, a few months after the fall of Granada, Columbus with three small ships set sail from Palos, in Andalusia, to seek the Indies. It was a voyage of daily anxiety. His men, gradually losing confidence, kept urging its abondonment, and several times were on the verge of mutiny. In every new phenomenon such as the variation of the needle, was seen a sign of danger, and even the consistently favourable winds excited a dread of not being able to

return. On October 12 they reached land among the Bahamas, and, remaining till the following January, discovered many thickly-peopled islands, including Hayti and Cuba, whose general name, the West Indies, is a record of Columbus's belief that he had reached the Indian sea. From the extent of the coast of Cuba he could not at first suppose it to be an island, and thought that he had found the continental province of Cathay. Leaving a small colony at Hayti, he returned to Spain, bearing with him proofs of the wealth of the new world, and received from Ferdinand and Isabella the honours of a conqueror. In six months he set out again, this time with seventeen ships and 1500 men. He was absent till the spring of 1496, exploring Hayti and visiting Jamaica and other islands; but, harassed by disputes and jealousies among the new colonists, whose main thought was the search for gold, he did not greatly extend his first discoveries. On his third voyage (1498) he reached Trinidad, and first touched the American continent near the mouth of the Orinoco, the volume of whose waters convinced him that southwards lay a great unknown land. The great navigator was led into curious speculations through observing on the voyage out a sudden change in the sky, stars, and water, accompanied by a milder temperature and a marked variation in the needle: reasoning on which things he concluded that the western half of the world was like the pointed end of a pear, that his ships must have been sailing upwards, and that on the summit lay the earthly paradise.

At Hayti he found the colony in a state of confusion. His enemies, jealous of his honours and chafing under his discipline, were sending home evil reports of his administration, and at length they succeeded in persuading Ferdinand to despatch another governor to supersede him. To his grievous wrong, as he complained, he was judged as a governor who had been sent to a province under regular government instead of as a captain sent to conquer a nation numerous, warlike, and unsettled, with customs and religion different from their own. Columbus was sent home in chains, but on his arrival the sight roused such indignation that he was forthwith set free. As a memorial of the rewards for his services he kept the chains ever afterwards hanging in his cabinet, and desired them to be buried with him. Meanwhile Vasco da Gama had reached India round the Cape of Good Hope, and in 1503 Columbus made his fourth and last voyage in search of a passage which would lead him to the same goal. Discovering Martinique, he once more touched the American continent, and sailed along the coast from Honduras to the Gulf of Darien, where the state of his ships forced him to abandon the expedition. After a succession of disasters and disappointments he returned to Spain, broken in health, at the end of 1504, shortly before the death of his patron, Queen Isabella. Ferdinand, with princely ingratitude, left the man who had added a new world to his dominions to die in neglect and poverty at Valladolid, May 20, 1506.

The search for India had resulted in the discovery of America. Some Europeans, indeed, in earlier times seem to have reached its northern coasts, but their visits have only an isolated interest. Within about a quarter of a century after Columbus landed in the Bahamas, Cortez had entered Mexico, and Pizarro was engaged in the conquest of Peru ; and the stream of emigration from Europe to America has been continuous ever since. Great in its consequences, the enterprise of Columbus was not less remarkable for the deliberation with which it was planned and the courage with which it was carried out. [G. P. M.]

Life, by Ferdinand Columbus (Pinkerton, vol. xii.). R. H. Major : *Select Letters of Columbus* (Hakluyt Society), 1847. C. R. Markham : *Life of Christopher Columbus*. Washington Irving : *Life and Voyages of Columbus* ; *The Companions of Columbus*. Prescott : *Hist. of Ferdinand and Isabella*. *Phil. Pos.* vi. p. 119. *Pos. Pol.* iii. 463. The remains of Columbus after being taken to San Domingo and then to Havanna, now rest in Seville Cathedral. Portrait by A. del Rincon, Royal Palace, Madrid ; copy of "Jovian" portrait (now lost), F. ; National Lib., Madrid (possibly from the "Jovian").

BENVENUTO CELLINI, b. 1500, d. 1571.

The week assigned to the chief inventors of mechanical improvements in the practical arts opens with the name of the eccentric artist of the Renascence, whose mechanical genius in all forms of metal work gave a universal impulse to his craft. Cellini might have been ranked with Holbein and Rembrandt as artist, or with Boccaccio and Rabelais as a recounter of anecdotes and poet of manners. But in this Calendar he is primarily viewed as the artistic workman.

BENVENUTO CELLINI was the son of a respectable musician and musical artificer of Florence, and was born there, All Saints' Day, 1500. He was educated as a musician, and for some time practised the art. But his strong bent for design induced his father to apprentice the lad, at fifteen, to a goldsmith. This was a usual mode of obtaining the mastery of hand, which, in the great age of the Renascence, was applicable alike to all the arts of form, and also to what are since called the mechanical arts. Benvenuto soon became the most consummate master of his age in all the modes of metal-working, —in gold, silver, bronze, enamel, steel or even in the baser metals. He made jewels, statues, plate, cups, armour, medals, coins, seals, and every kind of artistic ornament, large or small ; and into all he threw an inexhaustible wealth of fancy, combined with exquisite refinement of hand and subtlety of artistic perfection.

At nineteen, Cellini set off to Rome, and thence began his wandering life, full of adventure, romance, crime, frolic, and debauchery, under a series of princely patrons, Clement VII. and Paul III. at Rome, Francis I., king of France, and Cosimo de' Medici, at Florence. For these princes, Benvenuto executed an astonishing variety of works, colossal statues in bronze, jewels, plate, medals, coins, marble figures, and bronze portraits. At the same time he was employed

in military engineering, in designs for buildings, and even in the direction of artillery. In the famous siege of Rome, in which he took part, in 1527, he pointed the cannons which killed the Constable de Bourbon, and which wounded the Prince of Orange—at least if we are willing to believe his own story. According to himself, his life was a romantic series of hair-breadth escapes, preternatural occurrences, artistic triumphs, wild intrigues, amours, duels, brawls, and murders. At the age of fifty-eight he received ecclesiastical orders; but two years later he threw off the priest, married, and died at seventy-one, leaving a legitimate family, and he was buried with public honours in the church of the Annunziata at Florence.

This is not the place to describe the fascinating and strange story of his life which has been so often translated, and so much praised. In the Positivist Library it holds a place in the section of History, between the *Civil Wars* of Davila and the *Memoirs* of De Comines. The *Life of Benvenuto Cellini* represents to us in vivid colours the inner life of the artistic and constructive outburst of the Renascence in Italy. Benvenuto is the Froissart of the artistic pageantry. Being utterly shameless, he paints to the life his own vainglorious, fierce, quarrelsome, sensual, and indomitable nature, amidst the passionate love of beauty, skill, and fancy, which was the only religion of the age.

As an artist, it is rather the inexhaustible energy of the craftsman, and the impression of universal invention which he threw into the most trivial subject, than great permanent achievements, which have preserved his fame. His *Perseus*, the colossal bronze still standing beneath the *Loggia* at Florence, one of the typical triumphs of the Renascence, created a burst of admiration in his age as an artistic and technical masterpiece. The history of the mechanical difficulties overcome in its casting is one of the most vivid scenes of the serio-comic extravaganza which Cellini calls his *Life*. If we regard this strange and many-sided being as one of the pioneers of Modern Industry, it is as the contriver of infinite forms of ingenuity and grace, suggesting inexhaustible possibilities of fancy to the true craftsman and the mechanical artist. [F. H.]

Cellini: *Life* (Eng. trans. by Roscoe, Bohn's Stan. Lib.; by J. A. Symonds; by A. Macdonell; and by R. H. H. Cust). J. A. Symonds: *Renaissance in Italy*, vol. iii. ch. ix. Portrait, Musée Cluny, Paris.

AMONTONS (*Guillaume*), b. 1663, d. 1705.

Guillaume AMONTONS, the son of a Normandy lawyer, was born at Paris. A childish illness left him with the infirmity of extreme deafness, and for want of society he amused himself by studying geometry and mechanics. He learnt designing and surveying, and was employed in many public works. In 1687, when twenty-four years old, he presented a hygrometer, upon a new construction,

to the Académie des Sciences. Several years of his life were spent in improving the barometer—a most imperfect instrument in his time. In 1695 he published a treatise entitled *Observations on a new Hour-glass, and Barometers, Thermometers, and Hygrometers*, which he dedicated to the Académie des Sciences, into which, four years after, he was admitted a member. His admission paper was one on Friction, in which he propounded a new theory—to be found in the *Memoirs*. He invented a plan for carrying intelligence to a great distance, and quickly, by means of signals between persons so far removed from each other that they could only be seen by means of telescopes. He suggested that if a series of elevated stations were placed between Paris and Rome, each station by aid of telescopes in sight of the preceding one, messages might be conveyed very quickly by signals whereof the key would only be known at the extreme ends. In this he implicitly invented the semaphoric telegraph. Biot, in 1811, stated that "Amontons was the real inventor of the telegraphic art as it is practised at the present day." He is obviously the inventor of the first form of telegraph—an instrument that has since had so wonderful an effect on industrial progress. [J. K.]

Fontenelle : *Éloge d'Amontons.*

WHEATSTONE (*Sir Charles*), b. 1802, d. 1875.

Charles WHEATSTONE was born at Gloucester in 1802. His father was a maker of musical instruments ; and for many years the son followed the same occupation, in which he showed marked ability, devoting much leisure to devising mechanism illustrating the laws of acoustics. But it is the part he took in the invention of the electric telegraph that gives him a place in this Calendar.

The discoveries of the 18th century in static electricity and of its flow along conducting threads suggested the thought of using it as a means of signalling to a distance. Lomond, in 1787, caused pith-balls at the end of an insulated wire to diverge when the wire was charged ; Reizer, in 1794, similarly rendered letters luminous. But these were scientific toys, of no avail for practice.

Volta's discoveries in dynamic electricity roused new hopes of doing what was wanted. In 1807, Sömmering of Munich, sending a Voltaic current through a long wire, decomposed water at the other end. By arranging sufficient wires to represent the alphabet and the numerals, letters could be thus transmitted in pairs, the larger hydrogen bubble indicating the first, the oxygen bubble the second.

Oersted's discovery, in 1819, that a galvanic current passing near and parallel to a magnet causes it to deflect right or left according to the direction of the current, together with Faraday's discoveries in magnetic electricity, laid the foundation of practical telegraphy. Still it seemed that a separate wire would be needed for each symbol,

till Wheatstone's invention showed that five would suffice. For this a patent was taken in 1837. The current, sent down one wire and returning by another, caused two needles to deflect, and the point at which they converged indicated a letter of the alphabet. By an improvement made in the following year, the five needles were reduced to two. By rendering a bar of soft iron momentarily magnetic, a spring connected with alarum clock-work was moved, thus conveying a warning signal to the clerk at the distant station. In 1839, Wheatstone, in conjunction with Cook, brought this telegraph into use on the Great Western Railway.

The year 1837 was fertile in telegraphic inventions. Steinheil of Munich and Morse in America brought out registering telegraphs, in which the needles left traces on a slip of moving paper. This has formed the starting-point of many subsequent improvements; none, however, being more remarkable than Wheatstone's automatic transmitter, by which words have been sent at the rate of 400 per minute. Very important, also, especially for submarine telegraphy, was the invention known as Wheatstone's Bridge, for measuring resistance in currents. More recent inventions, especially those of duplex and quadruplex telegraphy, by the latter of which four messages can be sent simultaneously, two from each end of the line, cannot be here described. [J. H. B.]

Penny Cyclopædia, 1st supplement, 1845, Article TELEGRAPH. *Encycl. Brit.* TELEGRAPH. Wheatstone is buried in Kensal Green Cemetery, London. He was the last survivor of those whose names occur in the Calendar. Among the few persons living in 1849 included, are Manzoni, Rossini, Dunoyer, Poinsot, and Blainville. Portrait in chalk by S. Laurence, N.P.G.

HARRISON (*John*), b. 1693, d. 1776.

John HARRISON was born at Foulby in the parish of Wragby, near Pontefract, in 1693. His father was carpenter to Sir Rowland Winn, of Nostell Priory, and was sufficiently intelligent to be intrusted with the repair of clocks. Of literary education the boy had little or none, and to the end found great difficulty in describing his inventions clearly. But Saunderson's lectures on natural philosophy, lent to him by a clergyman, were a strong stimulus to thought. He joined his father as a practical surveyor, giving his leisure hours to clock-work. An eight-day clock made by him at the age of eighteen may still be seen at the Victoria and Albert Museum, South Kensington.

The precise measurement of time is the point in which our astronomical resources are most strikingly superior to those of the astronomers of Alexandria. They had the clock of the sky; they observed with accuracy the return of a star to the position it had occupied twenty-four hours before: but in subdividing this interval of time they were painfully at fault. The flow of water through an aperture in the vessel was their commonest expedient, liable to the defect

that unless the water were maintained at the same level the pressure, and therefore the rapidity of the flow, would vary. In the thirteenth century we find clocks moved by weights acting on toothed wheels. These, like the water-clocks, were useful for the common purposes of life, but their range of variation was far too wide for scientific use.

Galileo took the first step to an accurate solution by discovering that the swing of a pendulum of given length was invariable, so long as the arcs were small. Huyghens rendered Galileo's conception more precise, and applied it practically to the construction of clocks, in which the motion of a pendulum henceforth controlled the uncertain action of the wheels. But the pendulum was itself liable to two variations. Taken to different parts of the earth's surface, its time of vibration varied with the varying force of gravitation; and further, it varied with every change of length due to change of temperature.

Harrison in 1726 applied a remedy to the second of these defects. He attached the bob of the pendulum to a series of parallel rods alternately of steel and brass, metals which are differently affected by heat. These rods were so arranged that the downward expansion of the steel was neutralised by the upward expansion of the brass, and the centre of gravity of the pendulum remained unchanged. An improved escapement, and a plan for allowing the clock to be wound without stopping its action, made this clock of 1726 yet more perfect.

For marine purposes, the pendulum clock was of course inapplicable. It is uncertain by whom the vibrations of a spiral spring were substituted as the regulating power. These were independent of changes in the earth's gravity. On the other hand they, like the pendulum, were modified by temperature.

A watch set in Greenwich Observatory, and indicating Greenwich time precisely through a long voyage, when contrasted with the ship's local time as shown by solar observation, would at once determine longitude; the only other means available being observations of the moon; and lunar tables were in the 18th century far from accurate. This induced Parliament in 1713 to offer rewards of £10,000, £15,000, and £20,000 to any one discovering a method of finding longitude at sea within sixty, forty, or twenty miles.

In 1736, Harrison, working on the principle of his gridiron pendulum, remedied the variations of the balance by a self-compensating mechanism worked by unequal expansion of different metals. Five hundred pounds were awarded him. After successive trials, he produced in 1759 an instrument which, in a voyage to Jamaica, from November 1761 to March 1762, determined the longitude within eighteen miles, and another ten years afterwards, used by Cook in his voyage of 1765, which was accurate to ten miles. The Board of Longitude showed great unwillingness to award the promised sum, and without the personal intervention of George III. Harrison

would probably not have received it. Part of it indeed remained unpaid till 1773. Harrison died in London, 1776, at the age of 83, and was buried in Hampstead churchyard, where his tomb was restored by the Clockmakers' Company in 1879. [J. H. B.]

Dict. of Nat. Biog. Comte: *Astronomie Populaire*, pt. ii. ch. i. Portrait by King; med. by Tassie (cast, S.P.G.).

PIERRE LEROY, b. 1717, d. 1785.

Pierre, son of Julien LEROY, a watch and clockmaker, was born in Paris, and was brought up to his father's business. A marine watch that he had made—which went with great accuracy at sea—was presented to the Academy of Sciences. He determined the isochronism by spiral springs, invented a new escapement, and much improved watches and clocks. Amongst his memoirs is *Étrennes Chronométriques pour l'année 1760* (12mo). Berthoud regretted that Pierre Leroy had given the form of an almanac to this work, which is divided into eight parts, treating of the natural divisions of time; the artificial divisions of the calendar; of chronology; of the proper instruments to measure time, and of their use; of watches and pendulums; of methods of regulating the natural measure of time; and, lastly, the progress of horology in the 18th century. Another memoir was a succinct account of the labours of Harrison and others in determining longitudes at sea, and of the proofs given in their writings. He died at Vitry, near Paris. Harrison, Leroy, and Graham represent the gradual perfection of the measurement of time, the essential basis of scientific navigation. [J. K.]

Biographie Universelle.

DOLLOND (*John*), b. 1706, d. 1761.

John DOLLOND, the son of a Huguenot silk-weaver settled in Spitalfields, was born there in 1706. His education was scanty: but he showed an early leaning towards mathematical and physical science. Of this, however, no result came till, towards the end of his life, he associated himself with his son Peter, who in 1752 started as an optician. He is the founder of a family of opticians which has flourished for more than a century.

It was found by the early makers of telescopes that the object seen was surrounded by a rim of prismatic colours which confused its outline. Newton explained that, when a ray of white light was refracted, the colours composing it were dispersed, *i.e.* refracted unequally. He regarded this defect as so inherent in refracting object-glasses that he left off constructing them, and turned his attention to reflecting telescopes, in which most practical opticians followed him.

Nevertheless, in spite of Newton's great authority to the contrary, the hope was always retained that by combining media of different refractive powers the dispersion of colour might be neutralised. Euler proposed a combination of a hollow lens filled with water with a solid lens of glass. Chester Hall, of Essex, appears in 1730 to have effected some such combination ; but this was not known to Dollond, and indeed was not made public till Dollond's results appeared.

Dollond was stimulated to experiment on the matter by a memoir of Klingenstierna, of Sweden. His experiments were brought to a successful issue, and are clearly described by him in a paper read before the Royal Society in 1758. After explaining the facts of refraction and divergence, he points out that if a ray of light be passed through two prisms of the same substance so arranged that the refractions shall be equal and in opposite senses, the emergent ray will be white light. But will this be the case if the opposite refraction be in a different medium ? Newton had maintained that it would. Dollond set himself to try.

Placing a hollow glass prism, filled with water, with the base upwards, he inserted in it a glass prism with base downwards. He arranged the angle of the water prism so that the refraction of the two media should be equal. He found that the emergent ray, though parallel to the incident ray, was not white, as by the theory it should be, but coloured.

Pursuing the experiment, he found that by increasing the refracting angle of the water prism he obtained at last an uncoloured emergent ray, this result being effected when the refracting angle of the water prism was to that of the glass prism as 5 to 4.

On this principle Dollond began to construct object-glasses ; using hollow spherical lenses filled with water. This, from various reasons, being inconvenient, he began to examine the properties of different kinds of glass. He found after repeated trials that crown glass and flint glass differed widely in their dispersive power. By combining wedges of these two materials so that their refractions were as 3 to 2 in opposite directions, he succeeded in entirely neutralising the dispersion.

There remained only the difficulty of constructing large masses of glass of perfectly uniform quality, a problem solved in the early part of the nineteenth century by Guinaud, of Neufchatel.

[J. H. B.]

Dict. of Nat. Biog. Philosoph. Transactions for 1758, p. 733. Portrait, Greenwich Observatory.

GRAHAM (*George*), b. 1675, d. 1751.

George GRAHAM was born at Kirklington, Cumberland, in 1675. In 1688 he went to London and, being apprenticed to a watchmaker, attracted the attention of Tompion, eminent in the craft, whom

he succeeded in business. Graham was his superior in scientific attainments, and invented several astronomical instruments which contributed greatly to the advancement of that science. The large mural arch in the observatory of Greenwich was made for Dr. Halley under Graham's inspection and divided by his hand. The sector by which Dr. Halley first discovered two new motions of the fixed stars was of his invention and manufacture. At the instance of the fourth Earl of Orrery, he comprised the whole planetary system within the compass of a small cabinet, and from this model all the modern orreries have been constructed. He furnished the instruments for the members of the French Academy who were sent to the North to measure a degree of the meridian.

But Graham's great contribution to inventive art was his mercurial pendulum. The value of the pendulum as a regulator of clockwork was seriously impaired by the variations of its length as temperature changed. He arranged a mercurial vessel in connection with the steel rod of the pendulum, so that the expansions of the rod were exactly compensated by the rise of the mercury in the vessel. The vibrating length of the whole was thus preserved constant. He suggested the use of two solid metals of different expansive powers: but it was left for Harrison to realise this. Graham's "dead-beat" escapement was also a considerable improvement in chronometry.

Graham contributed several papers to the Royal Society, of which he was a Fellow. He died in 1751 at the age of 76, and, though a Quaker, he was buried in Westminster Abbey. His place in the Calendar, as the colleague of Dollond, points to the part which the perfection of instruments of exact measurement has played in the development of scientific discovery as well as of industrial progress.

[J. K.]

Dict. of Nat. Biog. *Philos. Transactions*, 1723-1743.

ARKWRIGHT (*Sir Richard*), b. 1732, d. 1792.

Richard ARKWRIGHT was born of poor parents at Preston, in Lancashire, the youngest of thirteen children. He was apprenticed as a barber, and in 1760 we find him trading as a hair-merchant. Of the steps that led him to devote his attention to spinning cotton yarn little is known. Hargreave's spinning-jenny, invented in 1767, had multiplied the spindles that a single workman could manage. But the yarn produced by it was soft, and could only be used for weft in conjunction with linen warps. The observation of iron drawn out through two pairs of rollers, the second pair moving more quickly than the first, suggested to Arkwright that cotton, when cleaned and carded, might be dealt with in the same way. On this principle, and with the help of Kay, a watchmaker of Warrington, he invented his celebrated spinning-frame. Warned by the fate

of Hargreaves, whose machinery had been broken by a Lancashire mob, he set up his first mill in Nottingham in 1769. This was worked by horse-power, and proved to be too costly. He was more successful with a second, built at Cromford, in Derbyshire, and turned by water-power. Other improvements followed; and by 1775 his invention was practically completed in the form in which we now have it.

It was from the employers of Lancashire, fully as much as from the workmen, that the principal opposition came. They entered into a combination not to buy his yarn. They strenuously resisted the reduction of the tax on cotton cloth. They allowed one of his factories at Chorley to be destroyed by a mob, in the presence of police and soldiers, without any attempt at interference. Lawsuit after lawsuit was brought against Awkwright's patent-right; and in 1785 it was finally upset.

In textile industry Arkwright is the greatest English name; but a few words may be said on the other leaders of the marvellous revolution effected in the 18th century in one of the most primitive forms of human labour. Spinning by the distaff and spindle is prehistoric. We cannot tell when it was that parallel vegetable fibres were first formed into a continuous thread by twisting; the drawing out of the thread and the twist being effected by a slender cylinder of wood, weighted with a central whorl of stone, rotated by the fingers, and then allowed to fall. Not merely does this primitive invention do, in its own slow way, all that can be done by the machines of our own time, but it surpasses them in delicacy and fineness. Linen yarn for the finest lace is still spun by the spindle, and surpasses the highest "counts"—that is, the slenderest threads—produced by the most elaborate machine. The spindle used for the yarn of the ethereal muslins of Dacca was hardly larger than a needle, kept steady by a slight pellet of clay; which yet being too heavy for the fine thread, was supported by a socket of shell in which it revolved.

Leonardo da Vinci, regardful of the humblest forms of industry, is believed to be the first to improve the spindle by adding a flyer. Towards the end of the 17th century the spinning-wheel, turning two spindles, and worked with a treadle motion, so that both hands were free, came into common use. In 1770 Hargreaves, a poor man of Stanhill, near Church, in Lancashire, invented the spinning-jenny, which drew and twisted sixteen threads at once. Arkwright's invention followed; and immediately after it Samuel Crompton, of Bolton, combined many of the merits of Arkwright's and Hargreaves' machines in his "mule," capable of spinning a fine thread of great strength. When the mule, at first worked by hand, was made self-acting, half a century afterwards, spinning machinery in all its essential principles was complete. [J. H. B.]

E. Baines: *History of the Cotton Manufacture*. *Encycl. Brit.* Article COTTON. P. Mantoux. *La Révolution Industrielle au xviiie siècle en Angleterre*. A. Toynbee: *The Industrial Revolution*. J. L. and B. Hammond: *The Town Labourer*, 1760-1832; *The Skilled Labourer*, 1760-1832. Portrait by J. Wright, N.P.G.

JACQUARD (*Joseph Marie*), b. 1752, d. 1834.

Joseph Marie JACQUARD was born at Lyons in 1752. He was of humble origin, and while earning his living as a straw-hat maker, he accidentally read in a translation from an English newspaper of a prize offered for a net or lace-making machine. He turned his attention to the subject, and at last succeeded in constructing such a machine. It attracted the attention of the local authorities, who spoke of it to Carnot, at that time Minister for the Interior. Jacquard was ordered to Paris. Carnot was much impressed with his ability, and attached him to the *Conservatoire des Arts et Métiers*. Here it became his duty to study systematically the art of weaving, and especially the weaving of complicated patterns. The threads of the warp which were to be lifted at each throw of the shuttle had hitherto required a special assistant to the weaver. For dispensing with such labour, Vaucanson in 1745 had put forward a plan which but for the imperfect shuttle then used would have been successful. Jacquard, carrying out the purpose of Vaucanson, arranged perforated cards in connection with a revolving cylinder so that, if a wire connected with a particular warp-thread passed through the perforation, it was taken up, and formed part of the pattern; otherwise it was detached. The precise arrangement of the perforations constituted the pattern.

Like Arkwright, Jacquard suffered persecution from masters as well as from men. His machines were shattered by mobs and his life threatened: and a formal condemnation of his process was pronounced by the Industrial Council of Lyons. Unreasoning protests these, which it is easy to denounce; but for which, had any governing wisdom presided over the birth of Modern Industry, an orderly procedure would have been established, in which the interests of displaced labour, as each improvement arose, would have been systematically considered.

Jacquard died, aged 82, at Oullins, near Lyons, where his statue now stands, in receipt of a moderate royalty from his looms, leaving an established reputation for simplicity, moderation, and patient dignity. [J. H. B.]

Biographie Universelle. Encycl. Brit.: WEAVING. Portrait by Bonnefond, Lyons.

CONTÉ (*Nicholas Jacques*), b. 1755, d. 1805.

CONTÉ, the son of a gardener, was born in Normandy in 1755. He was particularly distinguished for his ingenious mechanical contrivances. He constructed a violin with a common pen-knife when twelve years of age, and at eighteen executed voluntarily and gratuitously several pictures for the hospital at Séez, where he had been brought up. Going to Paris, he invented a hydraulic

machine which was approved of by the Académie des Sciences; and in 1793 he showed such skill as one of the committee for making experiments in regard to the decomposition of water by iron, instead of sulphuric acid, to obtain hydrogen for balloons, that he was subsequently appointed Director of the Aërostatic School at Meudon. In 1798 he accompanied the French expedition to Egypt, where his services as chemist and mechanician were of the greatest value. Upon returning to France he was appointed to superintend the great work on Egypt, and invented a graving machine, which economised the time and trouble of the artist. He also introduced into France the manufacture of crayons, for which he established a great manufactory which supplied the country with them. Conté, who died 6th December 1805, was held in universal esteem for his eminent qualities. [J. K.]

Biographie Universelle.

VAUCANSON (*Jacques de*), b. 1709, d. 1782.

Jacques VAUCANSON was born at Grenoble in 1709, of a middle class family in very easy circumstances. His father was a glove manufacturer. His mechanical genius was early shown in the construction of a clock, in which angels spread their wings and priests moved in procession. Shortly afterwards, on leaving Grenoble for Lyons, he formed a model of a hydraulic machine for supplying water to the city.

In Paris, to which he soon proceeded, the thought struck him of constructing an automaton in the shape of the flute-playing faun in the Tuileries gardens. It was no ordinary puppet-show that he had in view. The ideas of Descartes as to the automatic structure of the human body were floating through the world. To embody them in visible shape seemed a worthy enterprise. With this end in view, Vaucanson began by a systematic course of physical and anatomical study. He became thoroughly familiar with what was then known as acoustics, with the mode in which the gamut in different octaves was produced in flute-playing, and with the muscular forces directing air with the necessary force into the aperture of the instrument. He spent three years on this work; much thwarted by the opposition of his family, who reproached him with the waste of time and money. A warrant for the Bastille was talked of. But the statue was made at last. It executed twelve tunes, became a nine-days' wonder in Paris, and attracted the notice of the Académie des Sciences, to whom Vaucanson presented an elaborate memoir on the principles and details of its construction. Seven levers moved the fingers of the right and left hand; four dealt with the lips, widening or narrowing their aperture, and retracting or advancing them towards the orifice; a fifth moved the tongue. The reservoir of air in the chest was fed from three sources, so as to be

reinforced or weakened at pleasure. The varied succession of sounds was carried out on a principle not unlike that afterwards applied in his loom for weaving variegated patterns.

Vaucanson produced several other automata: a tambourine-player, and a pair of ducks which picked up, swallowed, and triturated corn, excreting the husk, were among them. He designed another for imitating the circulation of the blood, but by this time his attention was drawn to more practical purposes. It is to be noted that these ingenious machines, by which his name has become celebrated, were all produced before he was thirty. They showed the genius of the mechanist in, perhaps, a higher degree than has ever been seen before or since. But the last forty years of his life were spent in a very different way. After refusing an invitation from Frederick the Great, he was appointed by Cardinal Fleury inspector of one of the greatest industries in France, the silk manufacture. To its systematic improvement the rest of his life was devoted.

Silk differs essentially from other fibres used in textile industry, in that, whereas these others consist of short lengths which are formed into a continuous thread by spinning, the filament of hardened gum proceeding from the body of the silk-worm is continuous through the whole substance of the cocoon. The problem is to unite a sufficient number of these filaments together to form a thread that shall be perfectly even, and yet strong enough to stand the strain of the loom. Here, as with cotton or flax, the warp, called in the silk organzin, is the matter of principal concern. The tram or woof, being subject to less strain, gives less trouble; but organzin results from a series of four or five operations, each involving a new combination of threads to which a precisely uniform twist is to be imparted. Thus the three principal departments of the silk industry are the winding of silk from the cocoon, the twisting of organzin, and the formation of a plain or variegated web. Into all these processes Vaucanson introduced important innovations, the purpose of which was to render them automatic, and to enable one pair of hands to do the work of two or more. These improvements are described with extreme clearness in a series of memoirs presented to the Academy between 1751 and 1776. It may be noted that his loom for weaving automically varied patterns anticipated in principle that of Jacquard.

In the encomium pronounced on Vaucanson by Condorcet there are some remarkable sentences on the nature of his genius, which are applicable to some of the other names in this week.

"A wrong idea is usually formed of what constitutes the true mechanist. He is not a geometer who makes researches in the theory of motion and the order of phenomena, and thus elicits new principles of mechanics or discovers unknown laws of nature. Nor, again, is he the mathematical physicist who combines calculation with observation and experiment, and applies his knowledge to the construction of machines or to industrial processes.

"The mechanist is he who either applies a new motive power to machines, or who enables them to carry on operations hitherto intrusted to human intelligence, or who obtains from them more copious and complete results. Genius in this department of science consists, in the main, in conceiving and arranging in space the various mechanisms which are to produce a given effect, by controlling, distributing, or directing motive force. The mechanist is not necessarily an artist who owes his talent or his success to practice. Consummate mechanism may be invented without constructing or putting in motion a single machine; just as methods may be found for calculating the movements of a star which the astronomer may never have seen.

"In most other departments of science we find well defined principles; there are numerous methods, any one of which the thinker can pursue. If he raises a new question, he attacks it with the united forces of those who have gone before him. Not so with mechanism. Its true theory depends on the geometry of position, of the existence of which Leibniz was aware, but which as yet has made but scanty progress. There is no elementary book containing its principles, or explaining its history. Workshops and collections of machinery show what has been done; but to evolve results each must work for himself. To understand a machine it must be guessed. This is why mechanical genius is so rare, and so easily misled: why it is hardly ever seen without the audacious extravagances which accompany genius in the infancy of every science."

Vaucanson died 21st November 1782, occupied to the last with instructions to the workmen who were executing his designs.

[J. H. B.]

Condorcet: *Éloge de Vaucanson*. Diderot: *Encyclopédie*, Article ANDROIDE: *Journal des Savants*, vol. cxvii. I. Hedde: *Études Seritechniques sur Vaucanson*, Paris 1875. Vaucanson was buried in the Church of Ste. Marguerite, Paris. Bust by Budlot, 1783, Conservatoire des Arts et Métiers, Paris.

STEVIN (*Simon*), b. 1548, d. 1620.

Simon STEVIN was born at Bruges in 1548, and was often called "Simon of Bruges." He began life as a merchant's clerk at Antwerp; and travelled much in Poland, Denmark, and other countries of northern Europe. Few details of his early life are known. But his engineering skill attracted the attention of Prince Maurice, the stadtholder, who made him superintendent of Dykes, and ultimately Quartermaster-General in Holland.

Stevin distinguished himself in many branches of mathematics. He was the first to employ decimals in arithmetic; though he complicated the notation by inserting in connection with place of decimals a symbol indicating that place: a complication with which Napier seems to have been the first to dispense. It is sometimes said that Stevin was the first to use fractional indices as

exponents of the roots of numbers, but this is an error. The use of numerals as exponents of powers of arithmetical or algebraical quantities was introduced after Stevin's death by Descartes.

By far the most important work of Stevin is his *Treatise on Static*, or as he otherwise calls it, in the French version, *L'Art Pondéraire*. It is in six books, of which the first deals with the theory of equilibrium of solids. Nothing had been done in this department of mathematics since the time of Archimedes. He defines Static as a science which treats of the ratios of the weights of bodies: weight being described as the power or tendency of a body to fall to a given point.

The first part of the book deals with weight acting vertically. He defines centres of gravity, and gives a new demonstration of Archimedes' law of the equilibrium of the two arms of a lever. In the 11th and subsequent theorems he treats of weights acting obliquely: in other words, of equilibrium on an inclined plane.

He supposes a triangle, the plane of which is perpendicular to the horizon, and the base parallel to the horizon. Of the two inclined sides, one is double the length of the other. (This triangle may be more conveniently regarded as the section of a prism.) Let a closed chain containing fourteen equal and equidistant spheres be placed over the apex of this triangle, so that four of the spheres shall rest on the longer side, two on the shorter: the chain is of course conceived as perfectly flexible, and friction to be absent. The remaining part of the chain with eight spheres hangs freely below the base of the triangle. Stevin's theorem is that the four spheres on the longer side will balance the two on the shorter. For, if not, then we must suppose that the four balls on one side, plus the four adjacent to them, which are suspended, will lift the two on the other side, plus the suspended four adjacent to these. A new position of the balls will thus be established, but it will be exactly similar to the first. There will again be four balls on one side, two on the other, and eight in suspension. Consequently if there is motion at all, it will be perpetual motion. But this is absurd: therefore there is not motion, but rest. The two balls on the short plane are in equilibrium with the four on the long plane.

As in the Statics of solids, so in that of liquids, Stevin continued and very remarkably developed the work of Archimedes. The fourth book of the work here spoken of is on Hydrostatic. He first shows that in a parallelopiped of water the pressure on any part of the base depends on the area of that part multiplied by the height. Then imagining a tube placed within this vessel twisted in any way, and varying to any extent in calibre throughout its length, and filled with water, he shows that here too the pressure of the water is the product of the height and base. Again, let two vertical tubes, one of an inch and the other of a foot in diameter of the same height, and with the lower ends bent and in communica-

tion with each other, be filled with water, the slender column of water in one tube will balance the heavier column in the other.

Stevin died in 1620. The best edition of his works is that of Albert Girard, in French, 1634. [J. H. B.]

E. Mach: *The Science of Mechanics* (Eng. trans.). W. W. Rouse Ball: *A Short Account of the Hist. of Mathematics*. *Phil. Pos.* i. 16 and ii. 29. *Pos. Pol.* i. 395.

TORRICELLI (*Evangelista*), b. 1608, d. 1647.

TORRICELLI was born at Faenza, Italy, 15th October 1608. After being instructed in Latin and Greek by his uncle, a monk, he applied himself assiduously to mathematics (which he studied without a master), and wrote a treatise on Motion, which so much excited the admiration of Galileo that he invited him to his house and made him his amanuensis in October 1641. Galileo dying three months afterwards, Torricelli was about to return to Rome when the Grand Duke Ferdinand gave him the title of the Ducal Mathematician and the promise of a professorship in the University of Florence if he would remain there. He continued to pursue with ardour his experiments and discoveries in mathematics, physics, and astronomy, till he was cut off by an untimely death in October 1647, at the age of thirty-nine years.

He published his treatise on Motion in 1644—much augmented—together with other mathematical and physical tracts in a "Collection of his Geometrical Works," in all of which he showed himself an able disciple of Galileo, whose doctrines he illustrates and enriches with new discoveries. Torricelli is considered as the first to ascertain the gravity of the air by means of mercury in a glass-tube—whence resulted the barometer. This invaluable instrument was long known as the "Torricellian Tube." He was extremely expert in the fabrication of lenses for telescopes, which instrument he greatly improved; and he was the first who made microscopes of great power with globules of glass formed by the blow-pipe. He excelled in pure mathematics, and perfected the method of indivisibles discovered by Cavalieri. His *Lezioni Accademiche* were published in 1715. Comte (*Phil. Pos.*, ii. p. 330) wrote of Torricelli thus:—"He proved the existence and measurement of atmospheric pressure, by showing that this pressure sustained different liquids at heights inversely proportioned to their densities." And again:—"The most remarkable theorem which up to now has been deduced from the general equations of equilibrium, is the famous law first discovered by Torricelli regarding the equilibrium of heavy bodies. It consists in this, that when any system of heavy bodies is in a situation of equilibrium, its centre of gravity is necessarily placed at the lowest or highest possible point in comparison with all the positions it might take under any other situation of the system."

Comte explains that subsequently Maupertuis, in his Law of Rest, gave a large generalisation to this theorem (*Phil. Pos.* i. p. 501). [J. K.]

F. J. J. Smith: *Evangelista Torricelli* (Tercentenary Address, 1908). E. Mach: *The Science of Mechanics* (Eng. trans.). Torricelli is buried in S. Lorenzo, Florence. Portrait, F.

MARIOTTE (*Edme*), b. abt. 1630, d. 1684.

Edme MARIOTTE was born at Dijon, in what year is not quite certain. He took orders, and was made prior of St. Martin, near Beaune; but his time was principally occupied with scientific pursuits: mainly with the science of Physics, which Galileo, Torricelli, and others had recently called into being. He was one of the earliest members of the Académie des Sciences, formed in 1666.

His principal works are:—(1) A treatise on *Percussion*, in which he contests the view maintained by Galileo that a body moving from rest passes through infinite degrees of gradually increasing velocity before attaining its maximum. Galileo's treatise on *Percussion* is a mere fragment; his special subject being uniformly accelerated motion. (2) An essay on *Vegetation*, chiefly remarkable for the views held as to heat and light. Fire, he says, is not a special element: it is the same substance as the body which is being consumed by the flame: only its particles are in a state of violent agitation. (3) The work on which his fame principally rests, the *Nature of Air*. Here he formulates, and verifies experimentally, the law that "the condensation of air is in proportion to the weight pressing upon it."

It is evident, he observes, that the lower strata of the atmosphere are more condensed than the higher. The lowest has to bear the whole weight of the atmosphere above, and is in equilibrium with it. A tube of mercury of 28 to 30 inches, as Torricelli has shown, balances the weight of a column of air of the full height of the atmosphere. Let us then use this fact as a means of estimating the behaviour of air at different degrees of pressure more accurately.

If a small quantity of air be admitted with the mercury into the barometric tube, it will expand in the vacuum and will keep the mercury at a lower level. Supposing, as the result of the experiment, the mercury stand at 14 inches instead of 28, we shall then be sure that the mercury is sustaining half the weight of the atmospheric column, and the dilated air in the tube the remaining half.

Mariotte took a tube of 40 inches in length. He introduced into it 27½ inches of mercury and 12½ of air; and plunged the open end of the tube one inch deep into the mercurial basin. He found the mercury stand at 14 inches: the air occupied the remaining 25 inches. The air, expanded thus to twice its volume, was supporting half the weight of the atmospheric column. In a second experiment he introduced 24 parts of air above the mercury; he then

found the mercury descend to 7 inches. That is to say, the air had expanded from 24 to 32 inches—the mercury sustaining one-fourth of the atmospheric column, the expanded air three-fourths.

"I always found," he says, "that after the experiment the bulk of the dilated air bore the same proportion to that of the air at the beginning of the experiment as that of 28 inches of mercury to the excess of 28 over the height of the mercury resulting from the experiment." Thus, in the case last cited, 32 : 24 :: 28 : 28 − 7 = 21. The temperature in these experiments was of course supposed constant.

Mariotte did not apply his law to other gases than atmospheric air. It was found subsequently to be true of all gases: and was frequently spoken of as absolutely true of all temperatures and pressures. Wiser thinkers, Comte among them, had from time to time uttered cautions as to such an inference, which have been fully justified by the result. At pressures approaching the degree at which the gas liquefies, the law of Mariotte or Boyle (for Boyle discovered it independently) ceases to hold good. Mariotte wrote a work on the logic of scientific reasoning, of which Condorcet speaks in high terms. [J. H. B.]

Éloges des Académiciens, MARIOTTE. *Phil. Pos.* ii. 29. *Pos. Pol.* ii. 30.

BOYLE (*Robert*), b. 1627, d. 1691.

Robert BOYLE, the seventh son of Richard, Earl of Cork, was born at Lismore Castle in Munster, in 1627, the year after Bacon's death. He was sent to Eton at the age of eight, and he showed there precocious mental activity, reading Quintus Curtius and Amadis de Gaul with equal eagerness, and imposing on himself, as a boy of ten, the study of algebra as a mental discipline. Leaving Eton, he travelled on the Continent, and was in Florence during the year of Galileo's death. In 1645 he was in London attending the first meeting of the Philosophical, afterwards the Royal, Society. In 1652-3 we find him in Dublin studying anatomy: and in 1654 he settled in Oxford, and became the friend of Wilkins, Wallis, Hook, and other celebrated physicists. Here, in 1659, he invented his air-pump, a great improvement on that of Otto Guericke, and began to study systematically the laws of atmospheric pressure. In 1660, he published his physico-mechanical experiments touching the Spring of the Air and its Effects. His views were contested by Linus and others: and his reply, published two years afterwards, contains the demonstration of the celebrated law of atmospheric pressure.

Bending a long glass tube unequally so that the shorter limb should be parallel to the longer, and closing the opening of the shorter limb, he poured mercury into the bend of the tube, so that it stood at the same level in either limb, and arranging that the air

thus imprisoned in the shorter end should not undergo any abnormal pressure. The space occupied by this air would thus be easily measured. Then pouring into the longer end of the tube a quantity of mercury equal to the weight of a column of atmosphere, as tested by a barometer, say 29 inches, he found the imprisoned air reduced to half its bulk. Repeated experiments showed that the bulk of the compressed air varied inversely as the pressure.

Boyle then experimented on air at less than the ordinary pressure, by plunging an open tube into a larger vessel filled with mercury; then closing the upper end of the tube and withdrawing it. As the air in the upper part of the tube expanded, its capacity for resisting pressure diminished. Expanded to twice its bulk, it supported half an atmospheric column: at four times its bulk, a quarter-column, and so on.

Boyle did not limit himself to science. He was a brilliant linguist and an ardent theologian: an eager, alert mind, stirring in every direction. He was much admired by Continental thinkers: Boerhaave says, "We owe to him the secrets of fire, air, water, animals, vegetables, fossils, so that from his works may be deduced the whole system of natural knowledge." He was the friend of Newton, Wallis, Locke, Sydenham, and Burnet. He died December 30, 1691, and was buried in St. Martin's in the Fields. [J. H. B.]

Dict. of Nat. Biography. The first complete edition of his works is that of 1774, in five folio volumes. Sir E. Thorpe: *Essays in Historical Chemistry; Hist. of Chemistry.* L. Poincaré: *The New Physics* (Eng. trans.). Besides his work in Physics, Boyle did valuable service to Chemistry, and must be considered one of the founders of that science. See LAVOISIER. Portrait by Kerseboom, N.P.G.

PAPIN (*Denis*), b. 1647, d. abt. 1712.

Denis PAPIN, the son of a physician, was born at Blois, 1647, and was himself brought up to the medical profession. But from the first he turned his attention to mechanical inventions connected with the physical discoveries of his time. His name is best known through an ingenious contrivance for reducing bone and cartilage to a soft state, and thus rendering them fit for food by the action of super-heated steam. This invention was produced in England, where he was living, in 1681, and where he helped Boyle in some of his experiments. As a Calvinist he was unable, after the revocation of the Edict of Nantes, to return to France. He lived for some time at Marburg as a mathematical teacher. Thence in 1696 he went to Cassel. He left Germany in 1707 for England, and he ultimately died, in or about 1712, in obscurity. Some of his most important scientific papers are to be found in the Acts of the Leipsic Academy; and amongst them, in 1690, that which describes his plan for developing mechanical power by the condensation of steam.

The memoir is entitled *A New Way of Obtaining very great Moving Powers at Small Cost.* He had long seen that if a vacuum could be

created easily and effectively in a cylinder provided with a moveable piston, the pressure of the atmosphere would lower the piston, which thus might be used to depress one end of a balanced beam, and so elevate the other end with any weight that might be attached to it. All depends on the completeness of the vacuum. This he sought to produce first by the combustion of gunpowder in the cylinder; but he found that so much air remained as to render the lifting power of the piston very slight. He then thought of filling the cylinder with steam, afterwards to be condensed by the application of cold. This plan succeeded in his model; care being taken to prevent air from entering the cylinder by covering the upper surface of the piston with water, the piston descended rapidly and raised the other end of the beam as desired.

Papin's machine was not in any sense of the word a steam-engine. The mechanical force used was not the expansive force of steam, but atmospheric pressure. But his principle was widely applied for more than half a century. His model was worked out practically by Newcomen, and much improved by Brindley and Smeaton. Until Watt had brought his own engine into use, the machine designed by Papin was used for pumping water from mines, and also for lifting coal. Papin, in the memoir here noticed, proposes to utilise his machine as a moving power for ships. Three or four of his pistons were to act by cog-wheels on an axle fitted with paddles (*remi rotatiles*). More than a century was to pass before any effect was to be given to this part of his project. [J. H. B.]

D. Lardner: *A Rudimentary Treatise on the Steam-Engine*. For the above description of Papin's machine reference has been made to the Leipsic Acts. At Blois there is a statue of Papin and one of the chief streets of the town is named after him.

WORCESTER (*Marquis of*), b. abt. 1601, d. 1667.

Edward Somerset, 2nd Marquis of WORCESTER, and father of the first Duke of Beaufort, belonged to the royalist family actively engaged in the wars of the Commonwealth. For a long time he was an agent of Charles II. in France, and was captured and imprisoned in the Tower. During his confinement the idea of utilising the expansive force of steam occurred to him, and was embodied in his work entitled *The Scantling of One Hundred Inventions*, published in 1663.

The purpose aimed at was to raise water from a lower level to a higher; the height being much greater than that to which the ordinary suction pump would be applicable. The principle of the invention was that steam, generated in a vessel placed above a furnace, was admitted to the surface of the cistern containing the water which it was required to raise, and forced the water upwards through a tube connecting this cistern with that placed at the desired height. The steam was admitted alternately into two

cisterns, by a revolving cock or regulator ; so that, while the steam was acting upon the water in one, the other could be filled with a fresh supply of water. In this way the steam rising through the force-pump was rendered continuous.

Worcester's invention was in the true sense a steam-engine. Steam itself, and not the atmospheric pressure resulting from the condensation of steam, was the motive power. The steam was generated in one vessel and used in another, a condition indispensable to the working of steam as a mechanical agent.

Worcester's *Hundred Inventions* contains many pregnant hints, and many of them have proved fruitful. His work has been recently republished. [J. H. B.]

H. Dircks : *The Life and Times and Scientific Labours of the Second Marquis of Worcester.* D. Lardner : *A Rudimentary Treatise on the Steam-engine.* Worcester's book, *The Century of the Names and Scantlings of such Inventions as at present I can call to mind to have tried and perfected,* has been often reprinted. He is buried in Raglan Parish Church. Portrait by Vandyke.

BLACK (*Dr. Joseph*), b. 1728, d. 1799.

Joseph BLACK was born at Bordeaux, where his father, a native of Belfast, but of Scotch origin, was engaged in the wine trade, and was a friend of Montesquieu. Joseph, the son, was educated in Glasgow, where he studied medicine under Cullen, and in 1754 took the degree of Doctor of Medicine in Edinburgh. His inaugural thesis on the effect of gastric juice on magnesia shows that chemistry was then engaging his attention. In 1756 he published his *Experiments on Magnesia, Quicklime, and other Alkaline Substances.* This memoir is remarkable for the extended application of the balance to chemical analysis hitherto little used. He showed that the alkaline earths (carbonates of lime and magnesia) did not gain in weight, but on the contrary lost, by combustion ; what disappeared being a fixed air, which, when present, neutralised the causticity of these alkalies. Black was appointed Professor of Chemistry in Glasgow, afterwards becoming Professor of Chemistry and of Medicine at Edinburgh.

About 1761 his attention was drawn to the relations of heat with changes in the molecular condition of matter. He observed that whereas a given amount of heat would raise a pound of water through each degree of temperature, yet that when water passed from the solid condition to the liquid, or from the liquid to the gaseous, the law no longer held good. Heat entered into the substance without showing any result that could be tested by the thermometer. It disappeared ; to use Black's expression, it became *latent.* Black's view was that there was a *quasi*-chemical combination between the particles of the body and the subtle fluid of heat.

Black determined to compare the time taken in raising one pound of water one degree of Fahrenheit with the time required for melting

one pound of ice. The result of the experiment was that, in order to melt the ice, as much heat was required as would have increased the temperature of the water by 140 degrees, a result nearly equivalent to that of more recent observations. Fahrenheit had observed that water gradually reduced below freezing-point, and then suddenly congealed, gave out heat. Black measured the heat so given out, and found it to correspond with the heat rendered latent while the ice melted.

He then turned his attention to the phenomena of heat while water was being converted into vapour. Here too he found that there was an apparent disappearance of heat. Heat became latent, or, according to his theory, there was a combination of heat substance with the vapour-particles. Certain broad facts were from the first obvious. Applying heat to water, the temperature steadily rises, till the boiling-point is reached ; after this, further application of heat produces no elevation of temperature. And yet it was matter of common observation that steam had great scalding power ; and that when condensed in the worm of a still it communicated a large amount of heat to the water in the worm-tub. Thus, as with the case of ice changing into water, so here, heat becomes latent while steam is forming, and is given out again while steam condenses.

Black now endeavoured to reduce those phenomena to measurement. He found, first, that to convert a pound of water into steam, five times as much heat must be supplied as would have raised the water from 50° to 212° (Fahrenheit). That is to say, the process of ebullition rendered 810 degrees (5×162) of heat latent. He found, secondly, that a pound of steam passing along the worm of a still, raised 40 pounds of water in the worm-tub 20 degrees : that is, the pound of steam converted into water had given out 800 degrees of heat. The true quantity is considerably larger ; but the essential principle was truly stated. Black's theory of heat held its ground for three-quarters of a century. Descartes' theory, regarding heat not as a substance but a mode of motion, has recently taken its place : and the conversion of ice into water, or of water into steam, is regarded as so much mechanical work done upon the molecules of the substance.

Black was intimately associated with Watt, whose invention of the condensing steam-engine owed much to the researches here described ; a striking instance of prompt and fertile application of theory to practice.

Black was of simple, upright, unambitious character. He died suddenly and painlessly on December 6, 1799. [J. H. B.]

Dict. of Nat. Biography. A more complete account of Black's discoveries, which were not published in his lifetime, will be found in the biography by Robison, prefixed to Black's *Lectures on Chemistry*. These discoveries included his work in chemistry on gases as well as his investigations on heat. See also, Sir W. Ramsay : *The Life and Letters of Joseph Black* (1918). Sir E. Thorpe, *Hist. of Chemistry*. Black is buried in Greyfriars' Churchyard, Edinburgh. Portrait by Raeburn ; med. by Tassie, S.P.G.

JOUFFROY (*Claude François Dorothée, Marquis de*), **b. 1751, d. 1832.**

The Marquis de JOUFFROY d'Abbans belonged to a distinguished family of Franche Comté. In 1775, after seeing Chaillot's fire-pump, the young Jouffroy set himself to the problem of applying steam to navigation; and in the following year he produced a boat 40 feet in length which was propelled by an engine on the Doubs at Baume-les-Dames. The machine used was not a steam-engine, but a pump on Papin's principle, in which atmospheric pressure forced down the piston when the steam in the cylinder had been condensed. Another attempt was made in 1780; and a third, yet more successful, on the Saône in 1783. In this case Jouffroy employed paddles revolving on a shaft; and it may fairly be regarded as the first steam-boat. The outbreak of the Revolution a few years afterwards cut short Jouffroy's enterprise. He was one of the first to emigrate; and when he returned to France he found that his projects had been more successfully carried out by others.

Fulton, his rival, in his letter to Des Blancs admitted his priority. He wrote:—"Is it the invention which is in question? Neither M. Des Blancs nor I invented the Pyroscaphe. If that glory belongs to any one it is to the author [Marquis de Jouffroy] of the experiments at Lyons made in 1783 upon the River Saône." Such also is the judgment of the English and American tribunals.

M. Parisot in the *Biographie Universelle* quotes the report of the Académie des Sciences making good Jouffroy's claim, and concludes:—"This report, supported by numerous experiments, made in the presence of the Commissioners of the Academy, is an act of tardy justice, but a striking one, rendered to a man of genius in the person of his son, who continues his father's labours and emulates his glory. Henceforth neither the American nor the English will any longer contest with France the priority of steam navigation, but it will always be indebted to them for the improvements of that invention. France has the glory of it; let the profit be whose it will." [J. K.]

Biographie Universelle.

FULTON (*Robert*), **b. 1765, d. 1815.**

Robert FULTON, born in Lancaster County, Pennsylvania, was first intended for the trade of a jeweller, which he gave up to become a painter under Sir B. West in England. Making the acquaintance of an American named Rumsey, who was skilled in mechanics, Fulton quitted painting to become a civil engineer, distinguishing himself by the boldness and novelty of his projects. Whilst here

(in 1796) he published a treatise *On the Improvement of Inland Navigation*, in which he proposed the use of inclined planes as a substitute for locks on navigable canals. In France he advocated submarine navigation for the purpose of blowing up ships of war. The French Government rejecting the proposal, he came to England to see if the project pertinaciously persisted in for years would be adopted here, and made some experiments under the patronage of Earl Stanhope. He returned to America to construct a boat to pass under water, called a catamaran, nautilus, or torpedo. Amongst his other published inventions was a mill for cutting and polishing marble and a machine for twisting ropes. Finally, he devoted himself to the improvement of steam navigation, of which he claimed the invention notwithstanding his letter (*q.v.*, JOUFFROY) as to who was the real inventor. It is said that his death was hastened by the vexation caused at his being denied the credit of the discovery and the benefits he expected to derive from it. He died at New York, 24th February 1815. [J. K.]

C. D. Colden: *The Life of Robert Fulton*. Fulton was buried in Trinity Church, New York City. Portrait by Benjamin West.

DALTON (*John*), b. 1766, d. 1844.

John DALTON was born at Eaglesfield near Cockermouth, in 1766. His father was a woollen-weaver with a small freehold, and belonged to the Society of Friends. Dalton as a boy worked on his father's land, but showed from an early age a bent towards mathematics. From his 15th to his 27th year he was an assistant at a school at Kendal, where he had time and opportunity for scientific reading. In 1793 he became Professor of Mathematics and Natural Philosophy at New College, Manchester. In that city the rest of his life was passed.

Among the earliest of his papers, read before the Manchester Philosophical Society, was one on *Extraordinary Facts relative to Vision of Colour*: the first description given of colour-blindness, an affection to which Dalton was subject; red appearing to him simply as a shadow. Most of his papers were on the expansion of gases by heat, and on the specific heat of various substances.

In 1804, Dalton communicated to Dr. Thomson his theory that matter consisted of indivisible atoms, the atom of each elementary substance having its own weight. The theory rested on the observed fact that elements entered into combination with each other in definite and invariable proportions, or in simple multiples of those proportions. He had remarked, in investigating olefiant gas and marsh gas that if the carbon were the same in both, the latter of these two gases had twice the amount of hydrogen of the former. He saw, again, that carbonic acid had twice as much oxygen as

carbonic oxide. In the third edition of Thomson's *Chemistry*, published in 1807, and more fully in his own *New System of Chemical Philosophy*, of which the first part was published in 1808, Dalton put forward his theory with the facts supporting it.

The first two chapters of the *New System* deal entirely with the physical properties of bodies, especially with their specific character in relation to heat. The third chapter is entitled *Chemical Synthesis*. He observes: "In all chemical investigations it has justly been considered an important object to ascertain the relative weights of the simples which constitute a compound. But unfortunately the inquiry has terminated here: whereas from the relative weights in the mass the relative weights of the ultimate particles or atoms might have been inferred, from which their number and weight in various other compounds would appear, in order to assist and guide future investigations and to correct their results." He proposes to show the advantage of ascertaining the relative weights of the ultimate particles both of simple and compound bodies, the number of simple elementary particles which constitute one compound particle, and the number of less compound particles which enter into the formation of one that is more compound.

He arrived at the results that (1) water is a binary compound of hydrogen and oxygen, and that the relative weights of the two elementary atoms are as 1 to 7 nearly; (2) that ammonia is a binary compound of hydrogen and nitrogen, and that the relative weights are as 1 to 5, nearly; (3) that nitrous gas is a binary compound of nitrogen and oxygen, the atoms of which weigh 5 and 7 respectively: that nitric acid is a binary or ternary compound according to the source from which it is derived, and consists of one atom of nitrogen and two of oxygen, together weighing 19; that nitrous oxide is a compound similar to nitric acid, and consists of one atom of oxygen and two of nitrogen, weighing 17; that nitrous acid is a binary compound of nitric acid and nitrous gas, weighing 31; that oxynitric acid is a binary compound of nitric acid and oxygen, weighing 26; (4) that carbonic oxide is a binary compound consisting of one atom of charcoal and one of oxygen, together weighing nearly 12; that carbonic acid is a ternary compound, but sometimes binary, consisting of one atom of charcoal and two of oxygen, weighing 19. In all these cases the weights are expressed in atoms of hydrogen, the atomic weight of hydrogen being taken as unity.

Dalton was not skilful in the detail of experiments, and, as will have been remarked, most of his conclusions have been much modified by later research. Neither was he very sympathetic with the work of his contemporaries; he refused to the last to recognise the value of Gay-Lussac's researches into atomic volume, made at the same time as his own.

In 1822, Dalton visited Paris, and received much honour from the physicists and chemists of France. A pension was given him by

Government in 1833. In 1837 he was attacked by paralysis. He died from a recurrent attack of this disease, 27th July 1844.

[J. H. B.]

Dict. of National Biography. J. P. Millington : *John Dalton.* Sir E. Thorpe : *Hist. of Chemistry.* Dalton : *New System of Chemical Philosophy*, 1808-10. *Phil. Pos.* iii. 37. Dalton is buried in Ardwick Cemetery, Manchester. Portrait by Faulkner. R.S. ; med., N.P.G. ; bust by Chantrey, Manchester.

THILORIER, fl. 1820-1840.

THILORIER, the son of Jean Charles, a leading advocate and himself an inventor, first succeeded, in 1834, in reducing a gas to a solid. Comte has pointed out (*Phil. Pos.* ii. p. 369) that the solid and fluid states are not absolute qualities, but relative, and that the same substance would be a gas, a liquid, or a solid, according to the conditions in which it was placed. Faraday, in 1823, had liquefied carbonic acid in small quantity ; but in 1834 Thilorier invented a machine by which he reduced this gas to a liquid, and subsequently to a solid in the form of snow. Thus were finally established the identity of gases and vapours and the relativity of the various states of matter. By the aid of carbonic acid snow Thilorier solidified mercury. Faraday pronounced this to be " one of the most beautiful results of modern times " (*Phil. Tr.* 1845, p. 155). Comte regarded this as a remarkable type of man's mastery over Nature. Thilorier was also the inventor of other contrivances, especially a hydrostatic lamp. His last contribution to the Academy of Sciences was on the dynamic force due to the compression and dilatation of gases (1842). [S. H. S.]

Roscoe and Schorlemmer : *Chemistry*, vol. i. pt. 1, pp. 637-642. *Académie des Sciences ; Comptes Rendus*, 1835, 1836, 1838, 1841, 1842. *Annales de Chimie*, etc., tom. lx., pp. 427, 434.

WATT (*James*), b. 1736, d. 1819.

The inventor of the steam-engine was descended from a family of Aberdeenshire farmers, whose land had been confiscated during the civil wars, and who settled in Greenock, on the Clyde. James Watt, the father, was a merchant and magistrate of that town. There James Watt was born, January 1736. As a boy he had feeble health, and carried on his studies at home. At the age of nineteen he was apprenticed to Morgan, a mathematical instrument maker in London ; but after a year bad health compelled his return to Scotland, and he opened a shop for the sale of mathematical instruments in Glasgow. Here a model of one of Newcomen's engines, used by the lecturer in natural philosophy, was sent to him for repair. The defects of this engine forced themselves upon his notice.

The motive power in Newcomen's machine (see PAPIN) was the pressure of the atmosphere acting on the upper side of a piston beneath which a vacuum had been produced by injecting cold water to condense the steam with which the cylinder had been filled. To fill the cylinder with steam, the metal of which it was made must be kept hot, otherwise the steam would be cooled and condensed. On the other hand, unless the cylinder after being filled with steam was thoroughly cooled, condensation would not take place. Further, Watt now learnt from Black, who was at this time lecturing in Glasgow on Physics, the doctrine of latent heat. Large quantities of heat were given out by steam in the act of condensation. The result was that the vacuum beneath the piston was extremely imperfect. Such as it was, it was attained by an enormous waste of fuel.

The luminous idea now occurred to Watt to connect the cylinder with a separate chamber, into which the steam could be admitted when condensation was required, and which could be kept cold by placing it in a cistern of water, without abstracting any heat from the cylinder. The problem of avoiding extravagant waste of fuel was now solved: a brilliant series of inventions followed, by which the steam-engine, at first a rude though effective pump, became gradually adapted to the most delicate industrial processes.

The first step was to use the expansive force of steam in addition to atmospheric pressure in driving the piston downwards. Newcomen following Papin, excluded air from the cylinder by covering the upper surface of the cylinder with a layer of water. Watt dispensed with this, causing the piston to be packed with a composition of hemp and fat so as to be steam-tight. The admission of steam to the upper surface of the piston as a motive agent converted what had previously been an atmospheric engine into a steam-engine.

As water accumulated in the condensing chamber, and became hot, and was also mixed with air, it was necessary to pump it out and renew it. The piston of this pump was lowered and raised, by connecting its rod with the beam of the engine.

This was the condition of Watt's invention in 1765. His models were worked out in full three years afterwards with the help of Roebuck, a proprietor of ironworks; and subsequently he entered into partnership with Matthew Boulton of Soho, near Birmingham. Boulton's factory was noted for the perfection of its metal work; and the accurate adjustment of piston and cylinder, and of the complicated system of valves necessary for Watt's purposes, was thus rendered possible.

The machine was still employed as a pump only: and surpassed that of Newcomen simply in its economy of fuel. The force applied was intermittent; ceasing at the end of the down-stroke of the piston. It was unavailable for purposes in which continuous force was required, as in mill-work: and its direction was rectilinear, whereas in mill-work rotation round the axis turning the machinery

is needed. In 1782 Watt remedied the first of these defects by his double-acting piston, in which steam was admitted below the piston, forcing it upwards, as well as above for the down-stroke. This necessitated the further invention of parallel motion.

When the piston was forced downwards, its rod could be connected with the end of the working beam by a flexible chain. But in working upwards, a chain was no longer applicable; and as the end of the beam moved in a circular arc, while the motion of the piston was rectilinear, there was a difficulty in adjusting these motions. The solution was as follows.

If two rods move from fixed centres in small arcs, and an intermediate rod be supposed hinged to their two extremities, the ends of the connecting rod will of course describe the same arcs, but its middle point will describe a straight line. In Watt's system the piston was attached to this middle point: and thus its vertical motion was made compatible with the circular motion of the beam.

The working end of the beam imparted rotary motion to the axle of the machinery to be moved by a crank placed upon the axle, and connected with the beam by a rod. Here again was a difficulty. When the end of the crank was in a straight line with the driving rod, either above or below the axle, the motive force lost its rotating power and simply produced a strain on the axle. And in any case, the angle of the rod varying continuously during each revolution, the effective force would vary also. Watt met this difficulty by the fly-wheel; a large heavy mass nicely balanced on the axle, the momentum of which carried the crank beyond the "dead points" and generally equalised its motion.

As a means of giving rotating motion to a system of machinery the engine was now complete. Yet there remained the fact that from various causes the motive power, or the resistance to be overcome, would frequently vary. Unless absolute uniformity could be secured in the rate of evaporation, the supply of steam would not be uniform. Again, if at any moment a particular machine was brought to rest, or others previously at rest were set in motion, the work to be done by the driving shaft would diminish or increase, and the equability of the general motion be disturbed. To remedy this inconvenience, a valve called the throttle valve was placed in the steam pipe, controlling the amount of steam that passed through it. An extremely ingenious device, known as the Governor, attached to the fly-wheel, was made to control this valve automatically. Two balls attached by jointed rods to a spindle round which they revolve, diverged by centrifugal force when the wheel moved more quickly, and thus by a system of levers partially closed the valve, diminishing the steam-supply: when speed was slackened, then gravitation brought them nearer together, with the opposite result.

By the combination of these six distinct inventions—the condenser, the employment of steam above and below the piston,

parallel motion, the crank, the fly-wheel, and the governor—Watt's engine, beginning as a mining-pump, became at last available for the most delicate as well as the most laborious form of industry : spinning the finest thread as surely as it forged a mass of iron. And to this must be added that Watt endowed it with the power of registering the precise amount of work done, not in every stroke merely, but in every part of the stroke. His steam-indicator, an apparatus in which steam is admitted into a small cylinder and presses against a spring attached to a pencil in contact with a moving roll of paper, has been found of use in recent investigations of heat as a motive power.

Watt died on August 25, 1819, at Heathfield, near Birmingham. So perfect a combination of scientific and practical skill, concentrated by strong character on a definite and useful purpose, has perhaps never been seen before. [J. H. B.]

S. Smiles : *Life of Boulton and Watt*. Sir E. Thorpe : *Essays in Historical Chemistry*. Dr. Dion. Lardner : *A Rudimentary Treatise on the Steam Engine*. P. Mantoux : *La Révolution Industrielle au* XVIII^e^ *siècle en Angleterre*. Watt is buried at St. Mary's, Handsworth, near Birmingham. His statue, by Chantrey, is in Westminster Abbey. Portrait by C. F. de Breda, N.P G.

BERNARD PALISSY, b. 1510, d. 1589.

Bernard PALISSY was born at La Chapelle Biron, in the province of Perigord, in or about 1510. Having learned his father's trade of glass-painting, he set out at the age of eighteen, and travelled for many years over the greater part of France, visiting also the Netherlands and perhaps Germany. Painting formed his chief means of livelihood, but his knowledge of geometry, acquired at first in connection with his art and afterwards pursued for its own sake, often served to procure him employment in land-surveying.

About 1538 Palissy, being then married, settled at Saintes. A beautiful enamelled cup of Italian or German workmanship, which was shown to him, filled him with an eager desire to discover the secret of producing enamel. Away from all guidance, hampered by family cares, and in the face of paralysing discouragement, he toiled at the problem for sixteen years, amidst poverty so dire, that on one occasion his furniture and the very woodwork of his house were the only fuel for his furnace. Success and fame followed. But his troubles were renewed in the form of religious persecution, for he had adopted the Protestant faith, and was a dangerously outspoken man. In 1562 he was arrested and thrown into the prison of Bordeaux. His genius was too valuable, however, to be wasted in this way, and, being set free by special edict of the King, he settled in Paris under the protection of Catherine de' Medici, and there he produced his best-known works.

" Watchful of lizards, a warm friend to trees, a studious traveller in stony places " (so Professor Morley describes him), Palissy drew

his inspiration from the face of his mother-earth. From childhood he had been a close unwearying student of Nature. Working in relief somewhat after the manner of his great predecessor Luca della Robbia, he fashioned plates and dishes (known as his *rustiques figulines*) adorned with fishes, serpents, frogs, shells, herbs, berries, and ferns, copied from the fossils of the Paris basin so faithfully that their species can be exactly identified. Even to the learned these petrifactions seemed mere freaks of nature. "It was reserved for a potter without either Latin or Greek," said Fontenelle, "to have the hardihood in the latter part of the 16th century to declare in Paris and in the face of all the doctors, that the fossil shells were real shells deposited by the sea once upon a time in the places where they were found, and that animals had given to the figured stones all their different figures, and boldly to defy the whole school of Aristotle to attack his proofs."

Palissy's eminence as an artist has overshadowed his many other claims to distinction. Art was indeed only one of the many interests which filled his long and laborious life. He wrote and lectured on natural history and physics; on gardening and agriculture; on earthquakes and their causes; on fortification; on water and water-supply; and on medicinal springs. A great part of his writings is embodied in his *Discours admirables de la Nature*, wherein, in the form of dialogues, Theory, or the *a priori* method, is opposed to Practice, or the positive method.

In Palissy's old age a fresh outbreak of religious fanaticism led to his re-arrest. He was thrown into the Bastille, where he died just two hundred years before its destruction. [G. P. M.]

Henry Morley: *Palissy the Potter*. E. Dupuy: *Bernard Palissy* (1902). Sir T. C. Allbutt: *Palissy, Bacon, and the Revival of Natural Science* (1913). Portrait, Musée Cluny, Paris.

GUGLIELMINI (*Domenico*), b. 1655, d. 1710.

Domenico GUGLIELMINI was born in Bologna, of a middle-class family in easy circumstances. He studied mathematics under Montanari of Modena, and medicine under Malpighi. The appearance of a meteor, followed by that of the comet of 1680-1, suggested his first work, a treatise on comets, written on Cartesian principles. He became Professor of Mathematics in the University of Bologna, and in 1686 obtained the appointment of Surveyor-General of Water-courses—an important post in a city of the Lombard plain, so liable to destructive inundation. Guglielmini had received some years previously the degree of Doctor of Medicine; but his new post occupied henceforth all his attention and scientific power.

In 1690-1 he produced his hydrostatic treatise, *A New Method of Measuring the Flow of Water*. He establishes the principle that water issuing from a vessel through an opening in the side or bottom has a velocity equal to the square root of the height of its upper surface.

He shows, in the case of a horizontal canal, that the mean velocity is $\frac{2}{3}$ that of the lowest stratum, and that it will be found at $\frac{4}{9}$ of the height, measuring from above downwards. He then found by experiment that water flowing from a reservoir, or head, 1 foot in height, would traverse 216 feet 5 inches per minute; and from this he calculated a table of the flow for every height up to 30 feet. On these principles he estimated that the Danube sent every minute into the Black Sea 42,000,000 cubic feet of water. The book excited the attention of the Leipsic Academy, and a controversy arose with Papin, in which Guglielmini was seen to have the right on his side.

In Italy his fame spread. He was chosen one of the arbiters in water disputes between Bologna and Ferrara, and was instructed by the cardinals who governed that part of the States of the Church to draw up plans for preventing inundations, which, however, were not executed. Meantime the University established for his benefit, in 1694, a new chair—that of Hydrometry. Later he became Professor of Mathematics and then of Medicine at Padua while retaining his post at Bologna. In 1697 he published the most important of his works, that on the *Natural History of Rivers*; a remarkable monument of concrete science, resulting from the combination of mathematical principle with practical observation. He explains how streams, falling down their mountain sides, begin by following Galileo's law of falling bodies: how, as they reach the plains, friction neutralises this accelerating force, and their flow is thenceforth regulated by the height of the head of water behind them. He takes account of the friction of their banks and their beds; and shows that in consequence of friction it is not the lowest stratum of water that moves most rapidly, as in theory should be the case, but the middle stratum.

Then he passes to the formation of river-beds. The river forms this for itself by matters brought down from higher levels. When the fall is considerable the bottom is scooped out by the current. When the fall is such that the resistance of the bed is in equilibrium with the current, the bed remains unchanged for years. Similarly the current eats away the banks, until, the additional width diminishing the flow, equilibrium is established. There is again a tendency towards narrowing the banks by deposit of matters carried down from higher regions. All these opposing forces have to be estimated when it is proposed to modify the course of a stream. The special circumstances of tortuous streams, of banks formed of material too weak to resist inundations, of the confluence of streams, and many other points are considered. Guglielmini passes finally to what he calls the Architecture of rivers; *i.e.* the engineering works which the circumstances described render necessary.

Guglielmini did not neglect chemistry and medicine, on which he published several memoirs. [J. H. B.]

Fontenelle: *Éloges*, GUGLIELMINI. His chief work, *Della Natura de Fiume, trattato fisico mathematico*, is in the Positivist Library.

RIQUET (*Pierre Paul*), b. 1604, d. 1680.

The Languedoc Canal, or *Canal du Midi*, planned and executed by Pierre Paul RIQUET, was the first, and is still the most remarkable, of ship-canals, carried by means of locks through a hilly district. From Bordeaux to Toulouse the Garonne formed a natural waterway; and projects of a through passage to the Mediterranean, which should save the long voyage through the Straits of Gibraltar, had been frequent since the beginning of the 16th century. The fatal difficulty in the way had always been to find at the highest point in the course a sufficient supply of water.

P. P. Riquet, Baron de Bonrepos, belonged to an ancient and noble Florentine family, of which that of Mirabeau was also a branch, settled in Languedoc since the 13th century. He was born at Béziers in 1604. Knowing the country thoroughly, he proposed to bring together several streams flowing from the Montagne Noire, and lead their united waters to a reservoir near Naurose, thus collecting a body of water which would fill the canal on both sides of the slope throughout the whole year. In 1662 he submitted the plan to Colbert, who at once appreciated the commercial importance of the undertaking. A commission to which it was referred gave a favourable report; and after Riquet had by preliminary works proved the feasibility of his method of collecting the water, the construction of the canal was authorised in 1666, and begun by him in the following year. For fourteen years he devoted himself and his whole fortune to the work, but did not live to see its end. About a league still remained to be cut when he died in 1680, leaving its completion to his sons. Six months later the work was finished, and communication opened from the Garonne to the Étang de Thun, and thence to the port of Cette, which had been greatly improved by Riquet. The length of the canal, as originally constructed, was 140 miles, and its greatest height at Naurose 610 feet. Administered in accordance with rules drawn up by Riquet, it began to pay in 1724, and remained a prosperous undertaking till the introduction of railways, and is still in use. The navigation of the Garonne being uncertain in dry seasons, the canal was extended in recent times by means of a "canal lateral" to Bordeaux.

[G. P. M.]

Histoire du Canal de Languedoc, par les descendants de P. P. Riquet. L. F. V. Harcourt: *Rivers and Canals*, p. 171. Engr. by Vallet.

DUHAMEL DU MONCEAU, b. 1700, d. 1782.

Henri Louis DUHAMEL du Monceau was born in Paris in 1700. His family, of Dutch descent, settled in the Gâtinais, a district some fifty miles S.S.E. of Paris, during the 15th century. As a

school-boy he was not distinguished, but school-days over, he betook himself to the Jardin des Plantes, where he became the friend of Bernard de Jussieu and the naturalists, and devoted himself to the study of natural history. A disease affecting saffron in his native province attracted his attention; he discovered the parasite that produced it. His memoir on the subject obtained him admittance to the Academy. From this time forward he devoted himself to the study of the facts of vegetable growths, diverging occasionally to researches of much interest on analogous facts in the growth of animal tissues, as in his memoirs on the growth of bones, as indicated by madder-staining when animals had been fed on that food. His observations extended to every department of agriculture, the preservation of grain from mould and from insects, the values of different manures, grafting, the introduction of new plants such as rhubarb and potatoes, meteorology as affecting vegetation, and other kindred subjects.

In 1758 appeared his great work on forestry, embodying the results of previous papers, with many new observations. He treats here of the double movement of sap, of the formation of new wood, of the structure of branches and roots, of the influence of air and soil on the growth of the tree, and other similar topics. This mass of scientific facts was collected with an essentially practical purpose. The value of each kind of timber in different departments of the arts is carefully examined. The management of fruit-trees and vines is included.

His unrivalled knowledge of timber induced the Government to appoint him Inspector-General of the Navy; and henceforth everything relating to the materials of naval construction occupied his attention. The mathematical aspects of the subject he left to others. He established a special school of naval constructors. He improved the manufacture of cables by reducing the amount of twist previously given to them. Ventilation of ships was a matter in which he introduced great and important improvements; especially by utilising the stoves for cooking as means for introducing currents of fresh air into every part of the vessel. The hygiene of the sailors was improved also by close attention to diet.

In many of these investigations Duhamel was much helped by his brother, who resided on the ancestral estate at Denainvilliers, and superintended model farms and plantations designed on Duhamel's plans. Here foreign trees and plants were cultivated, plots of land were subjected to various modes of experimental culture, new processes of preparing and preserving products were put in practice. The brother appears to have been a model landlord, a peacemaker and benefactor among his poorer neighbours.

Duhamel died in Paris, after a short illness, at the age of 82.

[J. H. B.]

Condorcet: *Éloges*, DUHAMEL. Portrait by Drouais, père.

BOURGELAT (*Claude*), b. 1712, d. 1779.

Claude BOURGELAT, who was born at Lyons in 1712, of a family honourably distinguished in municipal and judiciary service, successfully followed for some years the practice of the law; but in consequence, it is said, of having gained an unjust cause, he quitted the profession in disgust and entered the army. An ardent lover of horses, he was placed at the head of the riding-school at Lyons, whither the fame of his great skill attracted pupils from all parts of Europe.

Veterinary science had many students before his day; but finding great ignorance prevailing, and crude and cruel methods in practice, he set himself to the scientific study of the horse and other animals, so that he might be able to teach others. Through his influence with Bertin, the Controller-General of Finance, he procured the establishment at Lyons, in 1761, of the first veterinary school. Its success was such that in 1766 he founded another at Alfort, near Paris, which he directed till his death, and which still remains one of the chief veterinary schools. The great importance of the work which he had thus initiated was at once recognised, and similar schools soon sprang up in other countries. Bourgelat wrote a great number of works on veterinary science; the articles in the *Encyclopædia* were intrusted to him; and he corresponded with Voltaire, Buffon, and D'Alembert. "You have opened a new career," wrote Voltaire; "you have conferred a real benefit on mankind." [G. P. M.]

For a list of Bourgelat's works, see *Biog. Universelle.*

SAUSSURE (*Horace Bénédict de*), b. 1740, d. 1799.

Horace Bénédict de SAUSSURE was born at Geneva in 1740. The nephew and pupil of Charles Bonnet, he was trained from his earliest years to varied and thorough scientific observation. At the age of twenty-two he was appointed to the chair of philosophy in Geneva, which he continued to hold for twenty-five years. As with his master, his earliest interest was in botany; but, living in sight of the wonders of the Alps, he came more and more to turn his attention to the structure of the earth. In 1760 he had reached the glacier of Chamouni, and thereafter he let no year pass without a journey into the mountains. Writing in 1779 the preface to his *Voyages dans les Alpes*, he says that he had then traversed the Alps fourteen times by eight different routes, besides making journeys to Italy, France, and England. Yet it was not till 1788 that Saussure, the first of Alpine climbers, succeeded in reaching the summit of Mont Blanc; the *Col du Géant* he visited in the same year, and Monte Rosa in the following year. All these journeys, full of danger and

involving hardship and privation, were made by him, as he tells us, with the mineralogist's hammer in his hand, and with no other aim than the study of natural phenomena. He omitted no means of making his observations of atmosphere, vegetation, rock, and glaciers exact and fruitful. His ingenuity improved existing instruments, such as the hygrometer and the anemometer ; and he invented others, the cyanometer and the diaphanometer, for comparing the degrees of transparency at different altitudes. On each occasion he prepared systematic and detailed agenda of the matters to be investigated, and "I imposed upon myself," he says, "the stern rule of always taking on the spot notes of my observations, and as far as possible of putting those notes into shape within the twenty-four hours." Thus, on account not only of the wide field which his observations covered but of the faithful record which he kept, was his work of inestimable value.

Summing up the results of his labours, Cuvier says that his investigations into the humidity of the atmosphere for the first time placed meteorology on a reasonable basis ; that though he gave little attention to fossils, his study of the primary rocks raised geology, hitherto discredited, to the dignity of a true science ; and that with all the great mass of facts which he had collected he had the courage to resist the temptation of constructing a system. With his health broken down by the privations which he had undergone in his journeys, Saussure resigned his professorship. For some years before his death in 1799 he received a pension from the French Republic. [G. P. M.]

Senebier : *Mémoire historique sur la vie et les écrits de Horace Bénédict de Saussure.*
Cuvier : *Éloges historiques.* Portrait by Saint-Ours.

BOUGUER (*Pierre*), b. 1698, d. 1758.

Pierre BOUGUER was born in 1698 at Croisic, in Lower Brittany, where his father was Professor of Hydrography. As with most mathematicians, his genius became manifest in early childhood, and when only thirteen, so it is said, he triumphed over his teacher in a public contest on a mathematical proposition. His biographers say, moreover, that at fifteen, when his father died, he succeeded to the office of hydrographer after a public examination of his qualifications. He quickly gained a great reputation by a series of memoirs presented by him to the Académie des Sciences, chiefly on astronomical subjects, including a work on the graduation of light in passing through successive imperfectly transparent substances.

The Académie des Sciences was then much occupied with the question of the form of the earth. A survey which had then been recently completed appeared to lead to the unexpected result that

the higher the latitude the shorter the meridian. It was decided to determine the matter by sending out two expeditions to measure degrees of the meridian, one near the equator, and the other in as high a latitude as possible. Bouguer, along with La Condamine, Godin, and two Spanish commissioners, was chosen to measure the equatorial degree, and set out to Peru in 1735. The difficulties and dangers of the expedition were such that nearly ten years elapsed before its purpose was accomplished—by the measurement with remarkable care of an arc on the plain of Quito. The northern expedition, under Maupertuis and others, proceeded to the head of the Gulf of Bothnia. A comparison of the two results finally put an end to the doubts which the French survey had raised. It may be noted that the measuring-rods for the base line of Bouguer's expedition were compared daily with an iron toise, which was afterwards known as "the toise of Peru," and became the standard of future measurement of Delambre and Méchain. (The most concise account of the many different calculations of the degree from the 17th century onwards is to be found in the *Penny Cyclopædia*, art. TRIGONOMETRICAL SURVEY.) Besides carrying out the main object of the expedition, Bouguer made observations on the expansion and contraction of metals by changes of temperature, on the amount of refraction at different heights (he was the first, says Montucla, to devise practical rules for estimating refraction), and on other subjects; and in 1749 he published an account of the expedition and of his observations (*La Figure de la Terre*). Between him and La Condamine a fruitless controversy ensued as to their respective contribution to the success of the expedition.

At his death he left unfinished a new edition of his work on the gradation of light, in which he described an instrument, the heliometer, invented by him for measuring the apparent diameters of stars. [G. P. M.]

J. E. Montucla: *Histoire des Mathématiques*, vol. iv. Delambre: *Histoire de l'Astronomie au XVIII^me^ siècle*. Bouguer: *Travels in Peru* (Eng. trans., abridged, in Pinkerton's *Voyages and Travels*, vol. xiv.). Portrait by Perroneau.

COULOMB (*Charles Augustin de*), b. 1736, d. 1806.

Charles Augustin de COULOMB, born at Angoulême in 1736, was engaged during the first part of his life in military engineering. Some years were spent by him in Martinique, and he served afterwards at Rochefort, Aix, and Cherbourg. On the invitation of the Academy of Sciences, while he was at Rochefort, he conducted an investigation into the friction of machines and the rigidity of cordage, the results of which were published in 1781 (*La Théorie des Machines Simples*). A systematic experimental study of friction had not before been made, and the work established Coulomb's scientific reputation. Thereafter, honoured as well for his lofty character

as for his genius, he rose steadily in the public service in spite of a short imprisonment, the result of his opposition to an expensive scheme of canals in Brittany, favoured by the Minister of War; but at the outbreak of the Revolution he was either removed from or resigned all the posts which he held. He was a member of the commission appointed to work out the new system of weights and measures; but from this he was removed (along with Borda, Lavoisier, Laplace, and others) by the Committee of Public Safety, which considered that "it ought not to delegate its functions except to men worthy of confidence by reason of their republican virtues and their hatred of kings." Retiring to Blois, Coulomb devoted himself to the education of his children and to science. In 1802 he was made Inspector of Schools.

Of Coulomb's services to science the chief was his mathematical and experimental investigation of the distribution of electricity and the measurement of electric force. He invented the torsion balance, an instrument for measuring the force of repulsion between two similarly electrified bodies; and by means of this instrument he established experimentally the law, known as Coulomb's law, that the force exerted between two charges of electricity is directly proportional to their product and inversely proportional to the square of the distance between them. In recognition of his contributions to electrical science, the electro-magnet unit of quantity has been called the "Coulomb." [G. P. M.]

Biographie Universelle. A fine edition of *Théories de Machines Simples* was published in 1821.

BORDA (*Jean Charles*), b. 1733, d. 1799.

Jean Charles BORDA, born at Dax in Gascony, showed at an early age an irresistible bent for mathematics, and was only 23 years of age when he gained admission to the Académie des Sciences by a memoir on the movement of projectiles. After an interruption in his studies, caused by the Seven Years' War, in which he took part, he entered the military engineer service. The circumstance, however, of his being stationed at a seaport finally determined him, in 1767, to follow a naval career. The superiority of French naval architecture was already such that French ships, captured during the war, were being used as models at Chatham; but consistent principles of construction had not yet been established. Borda who had become well known through several memoirs on hydrostatics, set himself to apply to shipbuilding the results of exact science, and was the founder of the French schools of naval architecture. In 1771 he accompanied an expedition sent out for the purpose of testing nautical instruments; and a few years later he was commissioned to make a survey of the Canary Islands, from the meridian of which many nations then reckoned longitude. His active service in the navy came to an end in 1782. Having been

despatched to convoy troops to Martinique, he was captured on his return by an English squadron, and taken to England, whence he was sent back to France on parole.

Resuming his scientific work, he published in 1787 an account of Tobias Mayer's reflecting circle, with such improvements as made it an available instrument; and when, in 1791, a new system of weights and measures was decreed, of which the unit should be a ten-millionth part of the quadrant of the meridian, his repeating circle, a further development of Mayer's invention, was adopted as the instrument of survey. (See *Penny Cyclopædia*, articles REPEATING CIRCLE and SEXTANT.) Borda himself was specially concerned with the experiments by which were determined the length of the seconds pendulum in the latitude of Paris, the measurement of the arc of the meridian from Dunkirk to Barcelona being undertaken by Delambre and Méchain; but in the general labours of the Commission of Survey he took a leading part. He died unmarried in 1799.

Throughout a hard and laborious life, Borda always worked with a purpose. Rigorously precise in his methods, and full of inventive resource, he steadily devoted his great scientific genius to definite practical ends. [G. M. P.]

Lacroix: *Éloge Historique de Jean Charles Borda.* Delambre: *Histoire de l'Astronomie au XVIII^me^ siècle.*

CARNOT (*Lazare Nicolas Marguerite*), b. 1753, d. 1823.

CARNOT was born in 1753, at Nolay in Burgundy, one of eighteen children, the father being a barrister. He went to school at Autun, and at one time felt a wish to take orders, which soon disappeared. He went thence to Paris, where his mathematical powers attracted the attention of D'Alembert; entered the corps of Engineers, and was a pupil of Monge at Mézières. In 1783 Montgolfier's balloon set him studying the principles on which balloons should be guided: and in the same year appeared his *Essay on Machines*, which contains a striking theorem on loss of power. A dispute with his elders on fortifications led, the year following, to a short imprisonment in the Bastille.

When the Revolution came, he addressed several memoirs to the Constituent Assembly, especially one on financial reform, in which he showed how bankruptcy could be prevented by the sale of church property. In 1791 he entered the Legislative Assembly, and was placed on the Committees of Foreign Affairs, Education, and War. The dismissal of the Royal Guard and increase of the National Guard were his doing. In 1792 he was engaged in the defence of the east and north frontier. In the Convention he voted firmly, though respectfully, for the death of the King: "never did duty lie," he said, "so heavy on his heart." In August 1793 he joined

the Committee of Public Safety : and now began his task of " organising victory " by co-ordinating the fourteen armies of the Republic to a common purpose. When need was, he could fight himself : as he showed in October of that year, when he spurred Jourdan to victory at Wattignies. His promotion of Hoche from the ranks to generalship showed his quick eye for talent, as did his choice of Bonaparte for command of the Italian army two years after. He was a member of the Directory : but a conspiracy in it drove him from France, whither he returned after the 18th Brumaire, and accepted the Ministry of War, but soon resigned it. He stood coldly aloof from Bonaparte, without being hostile.

During the later years of the Empire he retired into private life. His admirable Essay on *Statics* was written at this time : that on the philosophy of the *Differential Calculus* was somewhat earlier. He offered his services to Bonaparte when the allied armies entered France in 1814, and was made Governor of Antwerp, which he held successfully. His memoir to the King at his restoration showed his undaunted maintenance of republican principles. He was Minister of the Interior during the hundred days. After Waterloo he was exiled and retired to Germany and died at Magdeburg, 2nd August 1823, aged 70. His grandson was, in 1887, elected President of the French Republic.

Carnot stands here as a noble type of the military engineer, whose profession, from the Roman times downwards, has reacted beneficially on the arts of peace. The mathematical precision needful for fortifications, for military surveying and road-making, has always rendered the engineering soldier available for civil service. In the case of Carnot the intellectual power was of the highest order, paralleled only by the purity of his public zeal. [J. H. B.]

F. Arago : *Biographies of Distinguished Scientific Men* (Eng. trans.). The two Essays above mentioned are in the Positivist Library. *Phil. Pos.* i. 6. In 1889, his body was removed to Paris and placed in the Invalides.

VAUBAN (*Sébastien Le Prestre de*), b. 1633, d. 1707.

Seigneur de VAUBAN was the son of Albin le Prestre, of an ancient and noble family of Nivernois. He entered the army when young, where his genius for fortification soon declared itself, and was signally manifested in various successive sieges. His merit and services procured for him high military rank. He was made Governor of Lille citadel in 1668 and Commissioner-General of Fortifications in 1678. He took Luxembourg in 1684, and in 1688 was present at the siege and capture of Philipsbourg, Mannheim, and Frankenthal—under the Dauphin. He was a man of high and independent spirit, great humanity, and entirely devoted to his country's good. He regarded his art as a means of saving rather than of destroying lives : and he preferred a slow and regular advance in sieges to

quicker operations attended with loss. The art of fortifying, attacking, and defending he perfected. He fortified above 300 ancient citadels, erected 33 new ones, and had the principal management and direction of 53 sieges and was present at 143 engagements.

Various posts and honours were conferred upon him, and in 1703 he received the *bâton* of Marshal of France. This title, however, produced the inconveniences which he had predicted from it; his rank stood in his way and rendered him useless. At the siege of Turin, which proceeded unsatisfactorily, he offered to serve as a volunteer in the army and conduct the works. Louis objected that such an employment was beneath his dignity. "My dignity, Sire," he replied, "is to serve the State." Vauban was not less estimable as a man and a citizen than admirable as an engineer. No one could be more attached to truth, for which his passion was almost imprudent, and which he introduced on all occasions and defended with courage.

Amongst his works are his *Mes Oisivetés*, which contains his ideas and projects for developing the resources of France, and especially for the improvement of her agriculture. His *Dîme Royale* is a striking proof of his zeal for the welfare of the mass of his countrymen. It is a vigorous protest against the mode in which the land tax was assessed and collected. [J. K.]

Fontenelle: *Éloges*, VAUBAN. Carnot: *Éloge de Vauban*. Vauban was buried at Bazoches, Nièvre, but his heart is in the Invalides at Paris. Portrait by Lebrun, War Office, Paris.

MONTGOLFIER (*Joseph Michel*), b. 1740, d. 1810.

The elder of two brothers, inventors of balloons, was born at Vidalon-lez-Annonay, in 1740. As a boy he proved himself an intractable pupil, and his self-will was most marked when it was proposed to teach him theology. Arithmetic pleased him most, and he was able to solve some of the higher problems of mathematics without special mathematical training. When a young man he went to St. Étienne, engaged in chemical experiments, produced some new pigments and salts, and obtained a sale for them. From thence he went to Paris, but was called home to assist his father, who was a paper manufacturer. Joined by his brother (Jacques Étienne) he established two paper-mills at Voiron and Beaujeu. It is stated that both brothers conceived the idea of aërostation, and that in 1782 they began to pay joint attention to the subject. To Joseph Michel the credit is assumed to belong, as he was the prime mover in all experiments made, and appears to be known as such by his contemporaries.

The brothers made a bag of taffeta, heated the air it contained by lighting a fire beneath an opening at the bottom, rendered the bag by this means buoyant, and saw it ascend. Next a larger bag was tried, and again a larger still. In 1783, in presence of the notabilities

of Annonay, a balloon was sent up made of linen and covered with paper; it was 35 feet high, 100 feet in circumference, and its weight 430 lbs. After the air within it had been warmed, the balloon was liberated and it ascended to a height of 1000 toises (6000 feet), and fell into a vineyard half-a-mile distant. The brothers were invited to Paris by *savans*, where they made a balloon which went up from Versailles in the presence of Louis XVI. and Marie Antoinette. Two or three caged animals attached to the balloon came down safely. In October 1783 Pilâtre de Rozier and the Marquis d'Arlandes ascended in one of their balloons; and another ascent was made by Joseph Montgolfier and de Rozier in a much larger balloon in January following. Joseph Montgolfier was admitted into the Académie des Sciences, and was appointed by Bonaparte Administrator of the Conservatoire des Arts et Métiers and to a post connected with Commerce in the Ministry of the Interior. He largely helped to establish the *Société d'Encouragement pour l'Industrie Nationale* in 1802. Besides aërostation, Montgolfier improved and invented hydraulic rams, calorimeters, hydraulic presses, and apparatus for distilling and desiccating. On these subjects he published various pamphlets and memoirs. He died of apoplexy at Balaruc in 1810.

The week generally represents systematic attempts to render the resources of our planet, inorganic and organic, available for man. Palissy, the ardent and original student of Nature, brought the products of the earth into the service of industrial art: Guglielmini and Riquet turned its streams into instruments of navigation: Duhamel extended man's control over field and forest; Bourgelat protected from disease the animals associated with his life and work; Saussure opened the mountain-world to our view; Coulomb taught us to measure the earth's electric and magnetic forces; Carnot and Vauban, the great citizen soldiers, stimulated the arts of construction by developing the mathematical precision of defensive warfare. [J. K.]

Biog. Universelle. Montgolfier stands here as the pioneer in an enterprise now at length brought to success. The air-ship or Zeppelin follows directly from his invention—is in fact a dirigible balloon. The aeroplane—heavier than air—is on a different principle, but owes its inception to the previous work of the pioneers. The balloon was used at Fleurus to locate the position of the enemy forces—a purpose still more effectually carried out since by the later developments of aerial navigation. Montgolfier's remains now rest in the New Necropolis, Annonay. Bas-relief of the two brothers by Houdon.

MODERN DRAMA

LITTLE need be said as to the month devoted to Modern Drama in addition to what has been already said as to Modern Poetry in the month DANTE. The term *Drama* is used as widely as that of *Epic*. It includes ten writers of romances or painters of character and thirteen musicians. Indeed, out of forty-four names in this series, but twenty are those of dramatists proper. Nor is the line of demarcation between Epic and Drama at all rigidly maintained. Rabelais, Cervantes, and Swift come under the former: Lesage, Fielding, and Sterne under the latter. The real distinction seems to be that under Epic are included all forms in which the historical evolution of society has been idealised; under Drama come the various modes in which character has been analysed, and types of manners are contrasted on the same stage.

It is obvious that in the Modern Drama our own Shakespeare must be the great representative name. Under him are ranged the dramatists of Spain, Italy, France, Germany both North and South, and finally Holland.

The first week comprises the dramatists, pure and simple, the great followers of Shakespeare, from Lope de Vega to Goethe. Under this class come the creators of imaginative drama, which presents to us an ideal world peopled with beings of the fancy alone. And of all poets, not even Shakespeare or Calderon has taken more empyrean flights than has the author of *Faust*.

The second week comprises the masters of the historical drama, who paint types of society in the past rather than characters of pure ideal. And thus Schiller is grouped with Corneille, as Goethe in another week is grouped with Calderon.

The third week contains the great masters of comedy, the satirical drama of manners. Out of twelve names but two are writers of stage-plays, whilst of ancient poets there are under Homer four comic dramatists. In the modern world the comedy of manners has largely passed from the stage to the romance.

The alliance of music with the drama is enough to explain the grouping of the musicians with Shakespeare rather than with Dante.

The great masters are duly represented from Palestrina to Rossini; though, like all the rest of this Calendar, the roll of names is not continued beyond the first generation of the nineteenth century.

As the names of Palestrina, Handel, and Beethoven show, the list is not strictly limited to the masters of opera; yet it is plain that the connection of this week with the Drama rather than with Epic or Lyric poetry has influenced the selection and arrangement of names. One might wish that space could have been found under Milton's week for such men as Sebastian Bach, Haydn, Schubert, and Mendelssohn. [F. H.]

SHAKESPEARE (*William*), b. 1564, d. 1616.

The greatest of modern dramatists and first of English poets, William SHAKESPEARE, was born at Stratford-on-Avon, where his baptism was registered 26th April 1564. He died there, 23rd April 1616 (o.s.), aged exactly 52. The few facts of his outward life which have come down to us are mere fragments. Something, perhaps, there was of idyllic in his early years, something of licence in his youth and first manhood, something of worldly wisdom in his maturity; how much, relatively to other circumstances, we do not know. But it is certain that he was beloved for his genial and gentle disposition.

His birthplace was also the home of his youth. His father, an alderman of the town (therefore a professed member of the new State Church), was by occupation a farmer, but in rank a gentleman, having received in 1569 a grant of arms from the Heralds' College. His mother, Mary Arden, came of an ancient and honourable family in the county. In 1582 Shakespeare, then a youth of eighteen, married (under questionable circumstances) Anne Hathaway, the daughter of a neighbouring yeoman. Five years afterwards he sought his fortune on the stage in London; and in 1592 he is spoken of as a successful actor and author. In the next year he prints his poem *Venus and Adonis*, and dedicates it to the Earl of Southampton. At this period some at least of his great Sonnets were composed: they may be autobiographical; possibly they disclose a painful story of lawless love. From this point, domestic sorrows excepted, the fragmentary record tells us only of prosperity and poetic energy.

The twenty years between 1590 and 1610 were his harvest-time; in the first decade came chiefly the histories and comedies, in the second the tragedies: they, or some of them, were performed before the Court, as well as elsewhere, Shakespeare being one of the King's players. *Hamlet* (in its final form) was printed in 1604. Having long been a partner in the Blackfriars Theatre and in the Globe, Shakespeare made money; and in 1597 he bought a good house and land in his native Stratford. There he established his home, and lived his last years as a liberal gentleman. There also he died

at the age of 52, and was buried in the parish church. His will, dated shortly before his death, marks his desire to found a family in Stratford; it makes no reference to his works. In 1623 his stage companions, Heminge and Condell, having affectionately collected all his plays (mostly in manuscript), gave them to the world in the First Folio. Prefixed was a half-length portrait engraved by Droeshout. This engraving, and the bust in the church, which was already in its place, are the most authentic likenesses of the poet. The full appreciation of his extraordinary genius was not reached until the nineteenth century.

Shakespeare belongs to what Comte called "The Modern Transition." In that general movement, which, issuing out of the decaying Catholic-Feudal society, led confusedly towards total emancipation alike from Theology and War, what office was there for Art? The answer to this question will be plainer if we first consider the career of Art in the Middle Ages. In the Feudal world, where all ranks were rooted in the soil, and the vassal was bound to do free service to his lord, and the lord bound to protect his vassal, feudal warfare, home-life, and Catholic piety divided the general affection. Bowing its proud passionate spirit to Catholic consecration and discipline (the indispensable condition), Feudalism could, in its maturity, create sacramental ceremonies, like the act of Homage, solemn, affectionate, significant in every detail: gracious manners also (Chaucer's "very perfect gentle Knight"), and serious beauty of costume. As a dream of perfection, harmoniously uniting private to public life, an ideal chivalry arose, with its code of honour and worship of Woman, to form the core of Modern Poetry.

In such ideals, as already indicated, the Catholic Church, and, above all, her priesthood, bore a full part. Catholic worship filled the general imagination, and drew manifold beauty into its service. Book poetry was rare, but almost all art, and especially the arts of form which address the eye, became confessedly religious, and found their chief place in churches. There, but also freely in civic edifices and family dwellings, the artist habitually chose the revered Catholic subjects, and strove to set them forth with loyal and happy energy. His office, essentially a public one, was to glorify with human beauty, and especially beauty of expression, the divine and saintly benefactors, to claim their continued protection, and to represent their adversaries, outward or inward, as vanquished or struggling in vain, like the dragon with Michael's spear-point in his mouth. Such art, therefore, however limited, was a priestly or parental presence in daily life. The blood of contending citizens might flow in the market-place, but the grey church, built by their fathers, with its pleading figures of divine love, was looking down on them and reproving them. As mediæval cities still testify, architecture, sculpture, and painting, all freely given to the public

eye, then occupied a far more constant and beloved place than in any modern experience. Religion was the general patroness, and Art was the religious adorning of life. Yet it is plain that such religion and such art could not even then qualify the whole field of action, knowledge, or even feeling. Public amusement, for instance (such as the theatre), which in genial polytheisms had gone hand in hand with worship of the gods,—what was that to Christ, his holy Mother, and the Saints ? Could they even tolerate it ?

At the beginning of the 14th century the system showed signs of giving way. Then appeared the *nisus* of the modern mind—the beginning of the long effort to pierce, as through a dead sheathing, the antiquated supernatural faith and martial framework, both henceforth disqualified, and issue forth to explore the World and Man—to explore and exploit them, as might seem, without any control. The movement, therefore, was profoundly revolutionary, but it was unconsciously impelled towards a total reorganisation. Whilst the movement continued merely spontaneous, its principal operation was thoroughly to sap the ruling powers of Church and State in public life, and to kindle in learned minds a special passion for rediscovered antiquity ; over popular imagination and, above all, popular and feminine morals, the old system had much deeper hold. Accordingly during this phase the æsthetic result was to enrich pious Catholic art with knowledge and perfect it in skill, as we see pre-eminently in Italian sculpture and painting of the 14th and 15th centuries, and even in the adventurous poet Dante ; for he kept his faith.

But the artistic mind, following the general impulse, gradually receded from or secularised Catholic themes, and, eagerly seeking secular subjects, treated them for their special attractions, often with surpassing skill, but less and less with a moralised aim. Especially significant was the introduction of the nude into painting. At last, when the arts of form were in full-blown splendour, corrupt Catholicism broke violently asunder. The systematic struggle evoked immense rebellious passion and patriotic ardour, and no less profound meditations and questionings. In less than a century we see in Shakespeare the change in art as decisively manifest as in Bacon and Descartes the new departure in philosophy. Architecture, sculpture, and painting, all secularised, were now in decline ; Shakespeare was the shining chief of a band of poets—poets of the secular drama, whose subject was Man. His compositions stand out in human history as the first poetic work of the highest rank in which human interest is obviously and avowedly paramount. They do not pretend to be religious, and no religion claims or can claim them but the Religion of Humanity. Even the very calling which this representative genius chose for his own—the stage—was now solemnly banned alike by Catholic order and by pious Puritanism. It was patronised, however, by the dictatorial sovereign and a few nobles, and supported by the people on modern terms—

namely, that the dramatist should provide them with entertainment—such entertainment to be politically inoffensive (under penalties), and each spectator to pay cash for his share of pleasure in the "play."

Thus was "Art made tongue-tied by authority"—Shakespeare's own words (*Sonnet* 66)—and forced to beg its bread of spiritual inferiors. Such conditions tried Shakespeare (*Sonnet* 111), but did not dismay him. If he had to be silent upon some very great things, on others he was free, and he might have his asides. If he had to please his Blackfriars audience, that he could do with pleasure, and even reverence: could he not give them of his best, compel their laughter and tears and wonder, and set them all thinking—to their high delight and to his own, and—so time has proved—to the high delight of an ever-welcoming posterity? In choosing to write for the stage, then a new profession, this central figure of Modern Poetry was enabled to portray Human Nature in the most living and varied forms that language admits. Looking to the spiritual range which his works manifest, we may say that he took the Human Soul to be his province—the civilised Human Nature dear to every one, which had hitherto been systematically studied only in the Confessional, but was to be both web and woof of all art and all worship, without rival and without disguise.

How he revelled and triumphed in his new-gotten liberty, and what glorious gifts he showed, it is not possible to follow here: a few further observations only can be given for the purpose of emphasising the relation of his work to the general modern problem. Shakespeare struck with new might and grander meaning the common chord of Human Fraternity. This Fraternity was new in that it was now delivered from theology and thereby nobly enlarged: it was to be as much ampler than Catholicism, limited by its absolute creed, as Catholicism was ampler than antique Patriotism; and it was to sound clearer and clearer through all the Future of Man. Shakespeare exhibited Human Solidarity in two-fold form, the temporary negative or levelling spirit, which is now so familiar to modern thought, and the eternal ever-growing spirit of organic fraternity. The one rests on personal being and the universal fate of imperfection, death, and dissolution—"In Adam all die": the other, fully accepting that fate, subordinates it (subjectively) to affections and powers common to all but differing in degree, to their mutual ministry, to family and social ordinances, and to the general inheritance of the human past and future—"In Humanity all live." The levelling spirit Shakespeare often expressed with extreme poetic energy, but associates it with bodily weakness, mental disorder, and madness (*Richard II.*, *Hamlet*, *Lear*); in *Cymbeline*, Act iv. scene 2, we have this characteristic passage:—

> *Arviragus.* Are we not brothers?
> *Imogen.* So man and man should be;
> But clay and clay differs in dignity,
> Whose dust is both alike. I am very sick.

This levelling spirit, Shakespeare felt, had a work of destruction to do: but no more terrible condemnation of revolutionary equality was ever uttered than in the speech of the wise Ulysses, "Take but degree away" (*Troilus and Cressida*, Act i. scene 3), which the poet has himself illustrated by the fell character of the Bastard in *Lear*. Organic Fraternity, on the other hand, with its charm of benign truth, strength, and wisdom, is felt everywhere in Shakespeare; yet it was necessarily imperfect, both because affection in politics was already so grievously impaired by the revolution, and because the fraternal feeling had to win far larger grace towards the people and the peoples—Shakespeare gives us the wit of peasants, but not the dignity of their service or the depth of their affections—and again, because continuity, hitherto acknowledged only in the Family, the State, and Christendom, had lovingly to enfold the whole race, thus reconciling Order with Progress.

With this sublime secret of continuity Shakespeare was necessarily less in touch than Catholic Dante, although to his high honour he was among the first to choose dramatic subjects from plain secular history. Together with his auditors he (always be it remembered), a hearty patriot, was naturally in revolt against Catholicism, and against the whole bygone priestly and military order, and even against imperial Rome. To him therefore the Papal jurisdiction of the thirteenth century was a hateful usurpation, and the murderer of Cæsar was a hero.

Spontaneously, however, Shakespeare embraced all the past that was really accessible to him. Happily for him and for us, he was born into a society still rich with the outward and inward *beauty* created by centuries of Catholic Feudalism—beauty so long established, so intimately diffused, so vitally incorporated, as to seem self-existent, hiding from view its origin. This lingering beauty Shakespeare saw and joyfully reproduced, though he was in small sympathy with any official Christianity which he knew, or with the intriguing politicians around the Tudor throne. Catholic organisation and Catholic doctrine he repudiated; Catholic habits and Catholic feelings—above all, the affectionate and compassionate spirit—he cherished in rich measure. So, though no lover of war, and certainly a fervent lover of his country's inward peace, he loved the spirit of chivalry. Many of his characters bear the Catholic and chivalrous seal—not least, his female characters.

Similarly, though Shakespeare could not reach the conception of social and moral science, he stretched out eager hands towards it. No poet has shown such a love of generalising social and moral truths. These commonly appear as findings of mere human experience—not of revelation. Humanity, in fact, though imperfectly conceived, was the true object of Shakespeare's faith and love. The free temper of his work, and many particular passages, leave little doubt that he largely shared in the theological scepticism then so common behind the stage. Assuredly neither Catholic nor

Puritan, he was perhaps not even at heart a Christian. In this, as in other respects, he was a true modern; his creed was undetermined. But he also bears interesting witness to the Deism, such as for centuries after in its uncertain way haunted the minds of thinkers and artists. This was then the emancipating belief, and a most convenient one; for it easily gave divine shelter and authority to any desired conclusion whatever, negative or positive, from the promptings of appetite to the supposed destinies of the human race.

During all the modern period the Western mind in art must be regarded as having less and less religious guidance for its energies. It has had no faith. The old guidance was continually failing, while the new, though often admirably felt, was not yet visible. Having to find pleasant food for an unstable and increasingly revolutionary society, the artist, according to his genius, might amuse, delight, instruct, or even exalt, but the first characteristic of every work was that it was apart from religion—a special product. Art was thus degraded from its religious rank, and put among miscellaneous things. Hence it was often trivial in subject and hasty in execution, often addressed to a limited class, not seldom licentious —in a word irreligious. Such spots may sometimes be seen in Shakespeare's sun; nor is it strange, when we remember his occasional purpose, and the base surroundings of his theatre. How wonderful rather that he should have been so good and so pure! This was due to his great and affectionate character, but also to his neighbourhood to mediæval order. His intellectual apprehension of scepticism was extraordinary, but scepticism had not got possession of his heart. Yet compared with those Catholic artists above described, his heart is a sorrowful and anxious one: much more so that of his successors.

On the other hand, Modern Art has been free, and roving in the rich, unordered field of modern life and thought, it has here and there established admirable settlements, and built some "towered cities." In general result, the "intellectual interregnum," overproud of its material science and its grasping industry, which have engrossed not vulgar desires alone but beautiful talents, has been very adverse to art and artists. To architecture and the arts of form it has been almost ruinous; less unkind to poetry and prose romance, with their discursive powers and protean instrument of language; kindest of all to music, which echoes the modern heart and mind, but pronounces no dogma, and demands no visible beauty. Viewed as a whole, Modern Art has been a subsidiary preparation for the Religion of Humanity. It has helped to discredit theology and war; it has availed, though as yet very imperfectly, to glorify the history and hopes and the sovereign nature of Man. [V. L.]

Sir S. Lee: *A Life of William Shakespeare* (New ed. 1915). J. J. Jusserand: *Hist. of Eng. Literature*, vol iii. *Phil. Pos.* vi pp. 182-184. *Pos. Pol.* i ch. v.; iii 442, 443, 484-488; iv. 45-48, 84, 85. *Synthèse Subjective*, p. 43

LOPE DE VEGA, b. 1562, d. 1635.

LOPE FELIX DE VEGA CARPIO, the true founder of the Spanish drama, was by two years the senior of Shakespeare, being born in Madrid, November 25, 1562. His father—a poor gentleman, himself a poet—died during his son's infancy. The boy, a high-spirited adventurous lad, with precocious fluency of speech, was brought up by an uncle, an Inquisitor, who had him well instructed in literature and philosophy in the Imperial College of Madrid, and afterwards at the University of Alcalá. Returning to Madrid, Lope became secretary to the Duke of Alva, grandson of the Flemish governor; married, and set himself to literary work. A quarrel resulted in his banishment to Valencia, where a rude theatre existed. For this his first plays were written. In 1588 he enlisted as a soldier in the Armada, serving on board the Saint-John, where his brother, one of the lieutenants, died in his arms after a battle. It is characteristic of Lope, that one of his longest poems, a continuation of Ariosto's epic, was written during the storms and discomfitures of this expedition. He was twice married: the first wife died after his return from Valencia and before the Armada; the second in 1604. He lived afterwards with Dona Maria de Luxan, the mother of his favourite daughter Marcela. In 1609 he became a priest; was made a familiar of the Inquisition, and the chaplain of an important order of priests. But his ecclesiastical duties in no way checked his career as a dramatist: for more of his plays were written after his priest's orders than before. No such prolific genius is recorded in the history of art. Eighteen hundred dramas and 400 *autos* are attributed to him; most of these have disappeared, and were probably not printed; but what remains fills, together with other poems, eighteen volumes. Montalvan tells that he wrote five of his comedies in fifteen days.

His theory of Art, set forth in a treatise on dramatic composition, was, avowedly, to please the public at all hazards. Nevertheless the result of his work was to mould the national drama into the shape which it has since retained; that of three-act plays in eight-syllable trochaic metre, with assonant rhymes running through a scene, interspersed with every variety of rhymed lyrical measure. The interest depended on intricate interweaving of incidents, and on extreme energy and swiftness of action, rather than on deep analysis of character. But it mirrored the life of the nation and the time: and that life, with all its stains, was without sordid or vulgar taint: it flashed with colour and motion: it was daring, dignified, passionate, and gay.

The three plays selected by Comte are the *Dog in the Manger*; *Rich and Poor by turns, or Don John's Flowers*; and *Love in a Madhouse*. The last of these runs as follows: Florian, who has fought with his prince at Saragossa and left him for dead, flees from justice,

and enters the celebrated madhouse of Valencia as an assumed lunatic. Eriphila, a young lady, who to avoid a hated marriage has run away to the same city with her servant, is deserted by him, and left robbed and stripped at the city gates. No one believing her story, she too is taken to the madhouse. Her beauty fascinates Florian, who in turn, in spite of his mad talk, captivates Phedra, a niece of one of the officers. Eriphila and Florian fall deeply in love, though each thinks the other mad: they frequently meet, and as often are torn apart. Meantime Phedra's love for Florian comes so near to madness that, to sooth her, a pretended marriage with Florian is arranged. This rouses Eriphila's jealousy; and hence arises a whirl of dramatic and exciting incident, in which love and madness, real and feigned, run riot side by side.

Lope's activity in every branch of poetic literature, epic and satiric as well as dramatic, continued till the close of his life in 1635. But his last poems were tinged with religious melancholy, and he died in the practice of the severest asceticism. His funeral was a great national ceremony. It lasted nine days: bishops officiated, and the greatest nobles of the land appeared as mourners.

[J. H. B.]

For the Spanish dramas in this section, refer to *Coleccion Selecta del Antiguo Teatro Español*, by José Segundo Florez; Paris, Garnier frères, 1854. The plays were selected by Comte and have a place in the Positivist Library. There are twenty dramas by eleven poets. G. Ticknor: *History of Spanish Literature*.

MONTALVAN (*Juan Perez de*), b. 1602, d. 1638.

Juan Perez de MONTALVAN was born in Madrid in 1602. He was a son of the King's bookseller: at the age of seventeen he began to write for the stage: at eighteen he competed with many illustrious poets for the poem to be recited in honour of St. Isidore the Ploughman, Madrid's patron saint; one of the prizes was allotted to him, Lope de Vega being judge. With Lope he formed a close friendship, and was spoken of by a contemporary as the first-born of his genius. Like him he took priestly orders, and received an office in the Inquisition. Sixty of his plays, including several *autos*, were published. He died of brain disease, caused by over-work, at the age of 36.

One of his best-known plays, *The Lovers of Teruel*, is founded on the old story of a girl deceived by false tidings of her lover's death, who marries another. On the day of marriage her true love returns, and she dies with him. The story is redeemed from commonness by the stirring incidents of the African wars of Charles v. Montalvan is represented in Comte's collection by *No Life like Honour*; a play which achieved the unrivalled distinction of being acted many times at once on the two Madrid theatres. In this play, Don Carlos, the hero, has won his mistress's love by risking his life to save hers. He is poor and is thwarted by rich and powerful rivals, but at last is secretely married to her. One of his rivals

finds access to her room by night, and is killed in the duel that follows. A price is set on Carlos's head ; he flees to the mountains, and exists there for months. His wife is loyal and true, but her distress and poverty are known to him, and he fears the effect of temptation and of slander. He resolves to give himself to the Governor, claiming the reward which, at the cost of his own life, will set his wife free from her hazardous position, and free their name from any taint of suspicion. For there is no life like honour. The Governor treats his courage as it deserves. [J. H. B.]

See under LOPE DE VEGA.

MORETO (*Agustin*), d. 1669.

That Agustin MORETO y Cabana began to write before 1637, that he left three volumes of dramas, besides others not collected into a volume, that in 1657 he retired to a religious house in Toledo, and that he died there in 1669, are all the facts known about this poet. That his dramas are modelled on those of Lope de Vega is to say what might be said of every Spanish dramatist : it is, however, specially true of Moreto, who indeed in several instances took Lope's plots and recast them in a better shape. His play *Scorn for Scorn* is an instance in point : it still holds its place on the stage : while Lope's play, from which it was imitated, is forgotten. In the portraiture of character Moreto was more careful than his master, whose improvising genius gave itself no time for subtle analysis.

The play selected from his works by Comte is *The Brave Justiciary of Castille.* It is a vivid portraiture of Pedro IV., commonly known as the Cruel. He is depicted, however, by the poet, in conformity with what is probably the truer tradition of Spanish history, as a bold ruler, not unstained with crime, but resolved to quell a lawless nobility and to protect the weak against the strong. [J. H. B.]

See under LOPE DE VEGA.

GUILLEN DE CASTRO, b. 1567, d. 1631.

GUILLÉN DE CASTRO y Bellvis was born in 1567 at Valencia, one of the earliest centres of Spanish dramatic art. His family was noble, but poor. Coming to Madrid to push his fortune, he was encouraged by the patronage of Olivares ; held various civil and military posts ; and distinguished himself among the brilliant school of writers for the stage of whom Lope de Vega was the animating centre. Cervantes, in 1615, speaks of him as one of the most popular of dramatic poets. But he was a man of proud, independent, and intractable temper, and lived and died in poverty. The expense of his funeral, in 1631, was defrayed by charity.

Twenty-seven of the plays of Guillén have come down to us; the best known being the two on Spain's national hero, the Cid; these, by inspiring the still more famous drama of Corneille, mark an epoch in the history of art. In Comte's collection this poet is represented by *Mismatches of Valencia*. [J. H. B.]

See under LOPE DE VEGA.

ROJAS (*Francisco de Rojas*), **1st half of 17th Century.**

Francisco de ROJAS Zorilla was a contemporary of Calderon, and perhaps survived him; but neither the date of his birth nor of his death is known. That he was born in Toledo, and that in 1641 he was made a knight of the Order of Santiago, are nearly all the facts recorded of him. He published, in 1640-5, two volumes, containing twenty-four dramas, and a few others were published separately.

The drama selected by Comte, and by common consent his masterpiece, is *Garcia del Castañar, or None below the King*. The time described is that of Alfonso XI. (1312-50), against whose father Garcia Bermudo had rebelled. His son, the hero of the story, lives in retirement at Castanar, near Toledo, with large possessions, leading the life of a farmer and sportsman, and passionately devoted to a charming wife. The King calling for aid in an attempt to regain the city of Algeciras from the Moors, Garcia contributes such generous supplies that the King, wishing to know of so patriotic a subject, visits him in disguise, accompanied by a courtier, Mendo. Garcia has private notice of the visit, and is told that the wearer of the red scarf will be the King. The King, however, on the eve of the journey, had given the scarf to Mendo as a patent of nobility. Garcia and his wife receive their guests with profuse rustic hospitality. Mendo, thought by Garcia to be the King, insults the wife, a perfectly true and loyal woman, at first by words, listened to with courteous contempt, and then by a fruitless attempt to enter his house in her husband's absence. Garcia's soul is torn between loyalty and the passion of revenge. To touch the King's person is not to be thought of: and still less to sit down silently under such insult. He can see no issue but in his wife's death. She escapes, however, and Garcia is finally summoned to the King's presence, where he finds his mistake. His course is clear. He leaves the royal presence at once, kills Mendo in the ante-chamber, and returns to tell what he has done. For such wrong can be endured for a moment in *None below the King*. The vivid pictures of old-fashioned country life in Spain, of the passionate, even romantic love between Garcia and his wife, and of the stormy struggle between loyalty and revenge, mark this poem as one of the masterpieces of the Spanish drama. [J. H. B.]

G. Ticknor: *Hist. of Spanish Literature*. See also under LOPE DE VEGA.

GUEVARA (*Luis Velez de*), b. 1570, d. 1644.

Luis Velez de GUEVARA was born in Andalusia in 1570. He lived almost entirely in Madrid, where he became extremely popular as a dramatist. Montalvan, writing in 1632, speaks of him as having already written four hundred plays.

The play selected by Comte, *Throned in Death*, is a most melodious and pathetic poem founded on the story of Inez de Castro, secretly married to Pedro, son of Alfonso the Fourth, king of Portugal, and murdered with the King's consent for reasons of State. The King dies of remorse: and Pedro, now king, crowns and enthrones his dead Queen. The loves of Pedro and Inez are told with exquisite grace and tenderness, and not without sparkling humour; though the shadow of doom lowers over them from the beginning to the end. [J. H. B.]

See under LOPE DE VEGA.

OTWAY (*Thomas*), b. 1651, d. 1685.

Thomas OTWAY, the rival of Dryden, was the son of the Rev. Humphry Otway, rector of Woolbeding; and was born at Trotton in West Sussex, in 1651. He was educated at Winchester College and at Christ Church, Oxford, which he quitted without a degree at the age of eighteen. We may adopt the words of Samuel Johnson, in his *Lives of the Poets*: "Of Thomas Otway, one of the first names in the English Drama, little is known; nor is there any part of that little which his biographer can take pleasure in relating." After trying the stage as an actor, he produced his play of *Alcibiades* at the age of 24, and devoted himself to the drama, becoming a favourite companion of dissolute wits, at the time when, as Johnson says, "men of wit received no favours from the great but to share their riots." He received some assistance from the Earl of Plymouth, a natural son of Charles II., from whom he obtained a cornetcy in a regiment of cavalry. His short life was passed amidst squalid poverty and cruel disappointments. He died at the age of 34, in an obscure house on Tower-Hill, where he was said to be hiding from his creditors—according to tradition, choked with the bread which charity had given to satisfy his hunger.

His principal dramas are *Venice Preserved* (1682), and an earlier work, the *Orphan* (1680). He owes the place which Comte has given him between Rojas and Lessing to the singular pathos of some of his tender scenes. Otway has now lost all credit, and would hardly be remembered at all but for the extreme sterility and affectation of English drama between the age of Shakespeare and that of Goldsmith. Dryden, so greatly superior to Otway in poetic resource, and Congreve so superior in wit, have neither of them pictures of

such exquisite tenderness as a few of Otway's best, such as in the characters of *Monimia* and *Belvidera*. It has been said that "the love-scenes between *Jaffier* and *Belvidera* are unparalleled by anything in our later drama." Taine thinks that he belongs by force of imagination to the dramatists of the 16th century, and he reminds us of Ford and Webster. *Venice Preserved*, however tedious and overstrained to us now, kept the stage for 100 years. "It is more frequently represented," says Hallam, "than any tragedy after those of Shakespeare." "It is the work of a man not attentive to decency, nor zealous for virtue; but of one who conceived forcibly, and drew originally, by consulting nature in his own breast" (Johnson). In this he shows some of the quality of Metastasio and of Richardson, enough to redeem from oblivion his pitiful life and much else of coarse and stupid work. [F. H.]

Johnson: *Lives of the Poets*. Hallam: *Introd. to the Literature of Europe*, vol. iv. ch. vi. *Cambridge Hist. of Eng. Lit.*, viii. W. J. Courthope: *Hist. of Eng. Lit.* Otway was buried at St. Clement Danes, London. Portrait by Lely.

LESSING (*Gotthold Ephraim*), b. 1729, d. 1781.

LESSING was born 22nd January 1729, at Kamenz, in Saxony. His father was a poor Lutheran pastor, and he himself was educated for the pulpit. But whilst yet a student at Leipsic he exhibited, to his parents' abhorrence, a passion for the stage, and at 20 plunged into a literary career which, to the end of his life, was one long and distressing struggle against poverty. As a critic of the drama, his great achievement was to deliver the stage from the artificial French ideas then dominating the German mind. Lessing stood forth as a "sacred athlete," who loved to do battle with arrogant pedantocrats; but what inspired him was a passion for freedom and truth, and his masculine logical intellect, disciplined by comprehensive study of literature, both ancient and modern, was content with none but solid results, thoroughly reasoned out. Yet, with all his learning, his appeal was to natural and human standards; and, in like manner, his personal habits of life were those of unrestrained social intercourse with his fellow-countrymen, especially actors and soldiers.

In ridding his native literature of foreign domination he worked in no spirit of narrow patriotism; he invoked his countrymen not merely as Germans but as men; he was one of the first to reveal to them Shakespeare. Still less is he to be charged with the sentimental excess of the *Sturm und Drang* period, which seems the first fruits of spiritual independence. None more than he, the author of the *Laocoon*, insisted on rules of art; he was really the forerunner of the great classical poets of Germany. He disclaimed for himself the title of poet. His best known plays are *Minna von Barnhelm* (1765), *Emilia Galeotti* (1772), and *Nathan the Wise* (1779). In

this last drama, where the Mussulman, Jew, and Christian appear together on the stage, he idealised the theory which he also advocated in his works of controversial theology (*Erziehung des Menschen Geschlechts*, 1780, etc.), and which lay very close to his heart—the theory of religion without dogma, the successive creeds being treated as of equally divine origin, but as local and temporary phases of the education of mankind. Chimerical as is the conception of a religion existing without dogma (*Pos. Pol.* i. 326), it sprang with Lessing from a deep feeling towards the human race; it was opportune for his generation; and, in preaching it as critic and poet, Lessing did much to prepare the West for the Religion of Humanity.

[G. L.]

J. Sime: *Lessing*, 2 vols., London, 1877; and also *Life* (Great Writers). T. W. H. Rolleston: *Life of G. E. Lessing*. He is buried in St. Magnus, Brunswick. Portrait by Graff.

GOETHE (*Johann Wolfgang*), b. 1749, d. 1832.

Johann Wolfgang GOETHE, the most philosophic of great poets since Dante, was born in Frankfort-on-Maine, August 28, 1749. His father, the son and grandson of craftsmen, achieved distinction in the universities, became a doctor of laws, travelled much, collected works of art, and finally settled in his native city, where he held the rank of Imperial Councillor—a man of strong character, and of solid though not sympathetic intelligence. His mother, Catherine Textor, daughter of the chief magistrate of the city, a woman of noble and wide sympathies public and private, and her daughter Cornelia, will ever be associated with the memory of the poet. The influences on his early life of civic and religious festivals, of dramatic shows, of such books as fell in his way, and of the course of public events, have been vividly described in his poetical autobiography. Amongst them is to be noted the French occupation of Frankfort (1759-62), opening out to him the world of French thought and literature, and breaking the bonds of narrow German nationalism against which he never ceased to strive. His friendship with Fraulein Klettenburg, the Moravian mystic, is also of importance as presenting Christianity to him in a form as distinct from the narrow formalism of Luther or Calvin as from the bitter mockery of Voltaire.

He received a good home education from his father, who at sixteen sent him to Leipsic in the hope that he would become a jurist. Thence, after an interval of home-life, he went to the University of Strasburg, where he met Herder, whose wide and philosophic culture stimulated him strongly. It was at this time that he met Frederika Brion, daughter of a Protestant pastor, whom he loved and who returned his love. This attachment, as passionate on both sides as it was pure, lasted for eighteen months. But finally he tore

himself away from it, driven like Dante's Ulysses by the still stronger passion for experience of life which an early and obscure marriage would have narrowed. Of other ties formed and broken during the years that followed, it is better to say little than to seek with his extravagant adorers a special code of ethics for his failings, or, on the other hand, to yield to the pharisaic spirit that eagerly condemns the excess or even the existence of passions which it has never felt. But that his art suffered by his inconstancy may be well believed: Goethe, in his portraiture of women, has not rivalled the greatest masters of poetry.

In 1775 he was invited by Karl August, the young Duke of Weimar, to reside at his court. A strong friendship of a noble sort was formed between these two men; and under all the forms of respectful subordination, Goethe administered the affairs of the duchy for a long period of years. Here he met Wieland; Herder was shortly afterwards established as chief court preacher; and here, in 1799, Schiller took up his residence. Weimar became for some years the centre of German culture—the most important, since the failure of the French Revolution, of any that existed in Europe.

In the meantime Goethe's spirit had been strongly stirred by his passionate friendship for Frau von Stein (1776-1788), by his residence in Italy (1786-8), and by the outbreak of the French Revolution. He accompanied the army of invasion (1792), and was present at Valmy, which, as he told the discomfited officers on the evening after the battle, was the beginning of a new era in history. But he saw with extreme keenness the shallowness and inevitable failure of revolutionary theories. He dreaded their introduction into Germany; and he was inclined to Napoleonic rule as the best compromise between the old world and the new that the time admitted. For apostles of freedom he felt no sympathy, he said; self-will was the aim of each and all of them. Therefore in 1794 he set himself, in conjunction with Schiller, to the work which appeared to him the most important—the promotion of a higher standard of life and thought by ideal art, especially by the drama, and by synthetic conceptions of science.

He had already written many dramatic poems, the principal of them being *Goetz von Berlichingen* (1771), *Egmont* (1787), and *Tasso* (1789). Of *Faust*, already begun, nothing was yet finished. These pieces, together with Schiller's and Lessing's plays, were now produced at Weimar under Goethe's rigorous supervision. But not these alone; for the plan was to represent excellence of every kind and nationality. Many plays of Voltaire, Racine, Shakespeare, and Calderon were also represented. During the whole of this period he continued to elaborate at intervals two works which occupied him through the greater part of his life, *Wilhelm Meister* and *Faust*. The first part of *Wilhelm Meister*, which had been begun in 1777, was not finished till 1796, the year before the completion of his beautiful idyll, *Hermann and Dorothea*. The second

part, the *Years of Travel*, was not finally completed till 1829. It was the same with the greatest of his works, *Faust*. The conception had been formed, and some scenes written, before he had left Strasburg in 1771. It was continued at intervals, but the first part of the poem was not published till 1808. The second part was for the most part written during the last seven years of his life, and the last touches were not added till within a few months of his death.

In 1805 Schiller died. The intercourse between the two poets had been most precious to both: as elevating to the character of Goethe as to the art and intellect of Schiller. In 1806, Goethe married Christiane Vulpius, with whom he had been living since his return from Italy in 1788. She was then a simple uncultivated girl. His affection for her was constant and loyal; and when she died in 1816, no one doubted the poignancy of his grief. His daughter-in-law Ottilia presided over his household for the remainder of his life. A beautiful picture of his old age is preserved for us in the conversations recorded by his friend Eckermann. He died peacefully in March 22, 1832, and was buried in the cemetery at Weimar, by Schiller's side.

To depict Goethe's genius adequately is not to be thought of here. He is spoken of by Comte (*Pos. Pol.* i. 249) as a signal instance of the intrinsic kinship between philosophy and poetry. Early in his life two of the greatest among modern thinkers, Spinoza and Diderot, had strongly influenced him. He entered eagerly into the new and growing science of Life: and stands in the front rank of those explorers who have shown the forms of vegetal and animal life to proceed by gradual evolution rather than abrupt creation.

Summed up in a word, the aim of his life was Culture in the widest and deepest sense. To till the plot of ground allotted to us, to choose the best wherever found, to reject the mean and vile; such was the aim for himself and the world. It may be called the implicit aim of all great and good men. With Goethe it was explicitly and consciously followed, athwart and in spite of blinding storms of passion, with complete freedom from hampering prejudice of creed or nationality, and with full recognition of the necessary shortcomings and limitations of human life. *Faust*, the work of his life, is the summary of his experience. A willing victim of limitless desire, he is led, through grievous failure and sorrow, by large experience of human destiny lit up by glimpses of a nether and a higher world, to rest satisfied at the close of life with a little useful work honestly done. The Margaret whom he betrayed soars, like the heavenly powers with whose choral song the poem begins, in glorified penitence above and beyond him. [J. H. B.]

Goethe was a born poet. To feel, to realise what he felt by idealising it, and then to express it in verse, this was the natural bent of the man, and the actual history of his poems. This realistic foundation in personal experience, while assuring to his poetry sincerity and human interest, marks him off from Schiller and the

idealistic school. But what confers on Goethe a royal rank amongst poets was the range and harmony of his spiritual faculties. To a unique personality and a boundless force of self-expansion he joined a marvellous sensibility to impressions from all without him, from men and women, whether old or young; from society, solitude, and external Nature; from books and from life; from the ancient world and the modern world; from art; but also from philosophy and physical science. His comic description of himself as Das Weltkind—the World's Child—was a true one. His audacity of youthful passion was but the prelude to an all-embracing wisdom strenuously built up by thought, self-culture, and self-control; his judgment of his fellowmen, whilst measured and penetrating, was eminently sympathetic. And so it came about that even in early life his personal feelings were typical feelings, and his poems representative poems. Thus his *Götz* was the first stirring of the blood of Europe towards our mediæval ancestors, and as such was felt by Sir Walter Scott: his *Werther*, in its origin but the outpourings of Goethe's own love-disappointment, was at once accepted as the voice of the heart-sick generation in which he lived. Most representative of all is *Faust*. Whether as a secluded student eager to discover the *summum bonum* in absolute knowledge, or as a man of flesh and blood turning his back in disgust on this barren pursuit and plunging into sensual pleasures in the vain hope of there finding life and happiness, *Faust* is but a mystical impersonation of a transition age—an age where science has sapped the ancient faith but is itself capable neither of regulating nor of being regulated: where religion has become a universal doubt having no practical relation to human affairs, the elementary laws of social conduct are obscured, and the individual is abandoned to himself, his good and his bad instincts alike running riot. Of prose and style Goethe was a consummate master. In the fascinating melody of his verse, in the exquisite fitness and lucid beauty of his expressions, in his presentations so vividly realistic, yet so subtly suggestive of what is mysterious and ideal,—everywhere we feel the magic hand of the poet. The sunny pastoral of *Hermann and Dorothea*, and many of his ballads and minor poems, are gems of art and most precious records of human feeling. In the masterpiece of *Faust* the story of Gretchen, the ruined maiden, is told anew in its simple beauty and with unsurpassable pathos.

From the creeds he stood aside, neither professing nor denouncing any, equally removed from negativism and hypocrisy. For religion he worshipped art and preached social wisdom. But his Art was a self-culture earnestly addressing itself to important elements of human life which theology proscribed and materialism vilipended. And so, though not a religion, it served as a transition from the old to the new. It announced that to which the faith of Humanity can alone give complete significance—the identity of the Beautiful with the Good and the True. Similar, too, was the tendency of

his social wisdom. His grand maxim *Gedenke zu Leben*,—"think so as to live"—which, as has been truly said, replaced the "*Memento Mori*" of the theologians, might well serve as a Positivist watch-word. Positivist also in essence was his favourite theme of victorious man, and the conditions of that victory—a frank acceptance of the limitations of his lot, and a resolute striving after the highest within reach. [G. L.]

Goethe's life has been written by G. H. Lewes (2nd ed., 1864); also by J. Sime. The best and most accurate biography is that of Heinrich Düntzer, Leipsic, 1880 (Eng. trans.). *Wilhelm Meister* is translated by Carlyle; *Faust*, by Hayward, Bayard Taylor, and Miss Swanwick. The Positivist Library includes "Selections from Goethe." Bust by David d'Angers and several portraits, Weimar.

CALDERON (*Pedro Calderon de la Barca*), b. 1600, d. 1681.

CALDERON, the principal representative of the Spanish drama, was born at Madrid in the last year of the 16th century, January 17, 1600: and died in that city, 25th May 1681, at the age of 81. His life thus ran nearly parallel to Milton's. By birth he belonged to the Spanish aristocracy. He received the usual education of his time, first at a Jesuit school, then at the University of Salamanca. At the age of 19, he returned to Madrid and gave himself to dramatic work. In 1625 he entered the army, and spent ten years in Italy, where he wrote many of his best plays, *Life's a Dream* and *The Physician of his own Honour* being among them. On the death of Lope de Vega in 1635, Philip IV., a zealous and discriminating patron of art, recalled him to Spain, and made him Court Poet. The next fifteen years were given to dramatic work, interrupted once by a military campaign in Catalonia. In 1651 he took priest's orders; and ultimately he became the King's chaplain. From this time he devoted himself almost exclusively to the composition of the religious dramas called *Autos Sacramentales*, performed in the principal cities of Spain at the festival of Corpus Christi, and representing the central mystery of the Catholic faith with all the resources of allegory. Of his life few details have been preserved, nor was it eventful. But all contemporaries agree in speaking of the dignity and charm of his character. The house of Calderon, says his biographer, was the refuge for every one in distress: he never made an enemy, nor said a bitter word of any one.

Calderon's death marks the close of the most brilliant period of the Spanish drama, which had begun a hundred years before under Lope de Vega, being thus synchronous with the best period of the English drama as well as of the French. In fertility it far exceeded either. In great names the Spanish stage need not fear comparison: for Shakespeare has no second that can be compared to Calderon: and Calderon towers above his peers less inaccessibly than Shakespeare. It cannot be said that any Spanish poet entered into the modern spirit like Molière; nor did any of them rival Corneille in

keeping alive the majestic tradition of Rome. The Spanish drama was a faithful reflex of the life of the Spanish nation, which had retained the mediæval tradition more perfectly than any other, less affected than Italy or France by the sceptical spirit of the Renascence, and stirred by the Reformation to stronger ardour for the ancient faith. A singular sense of dignity and of brotherhood, inherited from the long struggle against their Moorish conquerors, had knit all ranks together in a way unknown in France or England. The discovery of America had aroused the military and the missionary spirit to new fervour.

All these impulses—chivalry, the sense of personal dignity common to peasant and noble, and in the latter carried often to fantastic exaggeration, genial gaiety, religious and patriotic enthusiasm—find expression in the Spanish drama: the passion of love between man and woman kindling the whole. Calderon, in whom all these features are strongly marked, is distinguished from his colleagues by more varied and luxuriant imagery, by deeper sympathy with passion, and above all by a vein of philosophic mysticism, less common in Western than in Eastern poetry. From the large number of his works which have come down to us, 120 dramas and 72 *autos* of very unequal value, Comte (see under LOPE DE VEGA) has selected seven which well represent the various aspects of his genius: this, rather than the selection of his seven masterpieces, being the object of the choice. The list comprises five dramas, viz., *Secret Revenge for Secret Wrong*, *The Mayor of Zalamea*, *Life's a Dream*, *Not Always as Bad as it Seems*, *May Mornings*; and two *autos*, *The Merchant's Ship* and *The Vineyard of the Lord*. *Secret Revenge*, the story of an injured husband who kills his wife but conceals her guilt, deals, like *The Physician of His Own Dishonour*, with a sublime form of egoism strangely at variance with Christian doctrine, yet intimately connected with the strength and delicacy of modern character. The fear of man's opinion is not the noblest motive; yet neither is it the meanest, when the men feared are loyal comrades. *The Mayor of Zalamea* is a yeoman, on whom officers are billeted. On one of them, who has outraged his daughter and refused to make such reparation as is possible, he executes the supreme sentence of the law, making his cause good before the General and before the King. This drama bears invaluable testimony to the sturdy dignity of character diffused through all classes in Spain. *Life's a Dream* shows the philosophic side of the poet's genius. Sigismund, a Polish prince, predestined, astrologers said, to evil, and therefore imprisoned from childhood, is taken in narcotic sleep from his dungeon to a throne. Giving way to every brutish passion, he is reimprisoned, and regards the adventure as a dream. If such sleep comes again, he will dream differently, he thinks. A popular tumult gives him a second chance: he is again placed on the throne, and this time struggles against the vices of the blood. Whether he wake or sleep he knows not, but honour and honesty are best.

And so he is trained to self-mastery, not by slavish bondage, but by free choice : for to do good is best, even if life be a dream. The theme occurs frequently with Calderon, especially in his *autos*, one of which bears the same title. *May Mornings* is a bright and charming love-idyll. In *Not so Bad as it Seems* the hero has good reason for suspecting his betrothed, to whom, nevertheless, he behaves with exquisite and chivalrous delicacy, finding out in the end that she is guiltless. This is the play that contains the energetic invective against those who would lower the standard of love, quoted by Comte in the dedication of his *Positive Polity*. A brief notice of the first of the two *autos* may be given. Sin, the pilot of a black ship, brings the World, the Flesh, and the Devil to an island where Man lies asleep, with Desire awake beside him. Thither comes the Merchant (Christ), attended by Love, to warn him of the danger. Man rejects the warning. Senses and the faculties of Intellect are lent to him, Time witnessing his contract to return them when called for. The World robs him of Memory, Fleshly Lust, of Will, the Demon, of Reason. Time comes to claim the deposit. Man is bankrupt and adjudged to prison. The Merchant reappears, offering his own imprisonment that Man may be redeemed, and bringing in his corn-ship the mystic Bread of life.

[J. H. B.]

Plays and *Autos* of Calderon have been translated or paraphrased by E. Fitzgerald, by D. F. M'Carthy and by R. C. Trench, and Archbishop Trench has added a valuable introductory essay to his translation. E. J. Hasell : Calderon. Parts of the *Wonder-working Magician*, one of the most powerful, have been freely rendered by Shelley. N. MacColl : *Four Plays* (Spanish Text with introduction and notes). See also under LOPE DE VEGA. Calderon's remains now rest in the Church of San Francisco el Grande, Madrid.

TIRSO (*Gabriel Tellez*), d. 1648.

Gabriel Tellez, commonly known under his assumed name of TIRSO DE MOLINA, was an ecclesiastic. Of his life little is known except that he was born in Madrid ; that he was educated at the University of Alcalá ; that he entered the Church in 1613 ; and that he became Abbot of the Monastery of Soria, where he died in 1648, according to some statements at the age of 80—to others of 60. Five volumes of his dramas remain, all published during his clerical career ; besides many plays that were issued separately. Many of them are by no means distinguished for moral rigour ; and some were suppressed by the Inquisition. One of them, *The Deceiver of Seville*, said to be founded on the adventures of a member of the Tenorio family, has become world-famous. Acted in Italian at Naples, it was brought thence to Paris, and in Molière's hands became known to the world as the *Festin de Pierre*—the original of Molière's, Mozart's and Byron's *Don Juan*. Others of his comedies are still acted in Spain, and are extremely popular.

The play chosen by Comte for his collection is a serious historical drama, called *A Woman's Wisdom*. It describes the adventures of Queen Maria of Castille, left a young widow with an infant heir, and beset by three fierce suitors—Henry, brother of Alfonso the Wise, John, brother of Sancho the Brave, and Diego de Haro, lord of the Basque provinces. The queen stands faithful to her lord and her son, and the suitors unite in rebellion against her. Two of them are loyal foes, one is a traitor, who suborns a Jewish physician to poison the prince. The poisoner is detected, and poisoned with his own potion. Twice the rebels are subdued, and twice forgiven. Finally the boy himself is plied with suspicions of his mother's truth, but through this peril also she comes out victoriously. It is a fine theme boldly and nobly treated, with impetuous action that never allows interest to flag. [J. H. B.]

See under LOPE DE VEGA.

VONDEL (*Joost van den*), b. 1587, d. 1679.

VONDEL, the founder and chief of the national poetry of Holland, was born in Cologne 1587, where his parents, Anabaptists of Antwerp, had taken refuge from the Spanish persecution. They soon returned to their native country, and settled at Amsterdam, where they carried on trade in hosiery. Vondel succeeded to the business, which was managed by his wife till her death whilst he wrote poetry. His first tragedy, *Henry* IV., appeared, when he was 23, in 1610. His tragedy of *Palamedes*, 1625, a patriotic defence of Barneveldt, was received with applause, but involved him in a State prosecution and fine. When long past middle life, he was driven out of the Anabaptist community, in which he had been brought up, and he then joined the Church of Rome. From that time most of his poetical works are on sacred subjects. His life closed in domestic trouble and misfortune ; but he ultimately received a small municipal office, and was allowed to retire on a full pension. He died at Amsterdam in 1679, at the age of 92 ; being only twenty-three years younger than Shakespeare, and yet having outlived Milton, who was his junior by twenty-one years.

Vondel is by common consent the father of Dutch poetry, and the restorer of the national tongue. He is the author of thirty-two tragedies, of a translation of the *Psalms*, and of the classical poets, both of Greece and Rome. His career as well as his poetry has some analogy with those of Milton, whom he may be said to resemble in his life of domestic trouble and difficulty, in his intense political and religious sympathies, in his somewhat stormy career and unmerited persecutions, and in the deeply biblical spirit of his later poetry. In his sacred and mystical lyrics he has some distant analogy with Calderon. His most famous work is *Lucifer*, a sacred

drama, of which the subject is the *Fall of the Rebel Angels* : which, both in plot and in spirit, has some real resemblance to the *Paradise Lost*. As to the extent of this resemblance criticism has raged from the time of Milton till now. Dutch critics have called Milton a plagiarist ; and his English defenders have denied all resemblance. *Lucifer* was published in 1654—Vondel being then 67 and Milton 46. Milton certainly read Dutch. *Paradise Lost*, though conceived much earlier, was not seriously begun till 1658, and it was published in 1667. It is impossible now to doubt that Milton owed to Vondel not a little of his general conception. In power, in lyrical beauty, and in dignity, the great dramatist of Holland is well worthy to take his place amongst the historical dramatists of France, Germany, Spain, and Italy. *Lucifer* has been translated into French and English. [F. H.]

G. Edmundson : *Milton and Vondel.*

RACINE (*Jean*), b. 1639, d. 1699.

JEAN RACINE was born at La Ferté Milon, a small town of the Valois, not far from Soissons, 21st December 1639. For three generations the Racines had all borne the name of Jean, and held the office of local collectors of revenue. The poet's father and mother died in his infancy, and he was brought up by his grandfather and grandmother, whose relations were closely connected with the Abbey of Port-Royal. He was educated at the College of Beauvais till the age of 16 ; he was afterwards three years at Port-Royal, and then passed into the College of Harcourt, at Paris. He subsequently passed some time in Languedoc, at the house of his uncle, a canon, ostensibly studying theology with a view to orders ; but at the age of 22 he returned to Paris, definitely resolved to pursue the career of poet. The biographers relate his early zeal and success with the classical poets. He wrote elegant Latin poems, and became saturated with the Greek dramatists. Sophocles, Euripides, and Ariosto were his favourite reading. With the exception of Milton and Gray, no modern poet has been so completely trained in classical scholarship.

At the age of 20, his *Ode* on the marriage of Louis XIV. attracted the attention of Colbert, who sent him a gift of 100 louis ; and a pension of 600 livres was subsequently granted to him for another ode which he wrote at the age of 23. This brought to Racine the friendship of Boileau and of Molière, and some early tragedies were represented with moderate success. *Andromaque* (1667) revealed to the world the young dramatist (aged 27) in all his power. The King and the court took him into favour ; and a strong party proclaimed his superiority to Corneille, then more than thirty years his senior and in the decline of his powers. In ten years (1667-77),

Racine produced seven tragedies and one charming comedy. All were received with almost extravagant applause, which proclaimed him the first of the poets of his time. *Phèdre*, the last of the series (1677), is perhaps his chief masterpiece in pure tragedy. But the sensitive and somewhat morbid spirit of the poet led to a great revulsion. Indignant at the cabals of his rivals, the attacks of critics, filled with religious doubts as to the sinfulness of the theatre, and possibly disappointed in love, he resolved to withdraw for ever from the stage, in order to devote himself to a religious life, and even to become a Carthusian monk. His friends prevented him from leaving the world; but the poet adhered to his purpose.

At the age of 37 he left the stage for ever, and lived a life of strict religious meditation. His was a character neither very generous, amiable, nor exalted. His self-esteem was great: his temper querulous; and a life of ease and devotional retirement exactly suited his somewhat morbid egoism. The confessor whom he consulted induced him to marry. By Catherine de Romanet he had seven children, of whom four daughters entered convents, and Louis, his youngest son, became a poet of some repute, and has left us an agreeable life of his father. Racine was soon appointed historian to the King, and devoted most of the literary portion of his later life to accumulate materials for a history of Louis XIV. The twenty-two years which remained to him he gave to devotion, to religious meditation, to the society of Boileau and a few friends, and to the careful education of his children. He came rarely to court, avoided all his old associations, and would not permit the theatre or his own pieces to be mentioned before him. It is said that long after his death his wife asked his son what was the difference between masculine and feminine rhymes. The *Esther* and *Athalie* (1690-91), sacred dramas written solely for the pupils of St. Cyr at the urgent entreaty of Madame de Maintenon, were in no way a breach of the self-denying ordinance which the poet had imposed on himself. These beautiful pieces are hardly dramas; but Racine felt compunction to see them treated as such. He wrote no more. His criticism of the campaigns of the King in a private memoir submitted to Madame de Maintenon, or some other remonstrance, led to his disgrace. He died, April 1699, in his 60th year, in all the peace given by a profoundly devotional spirit. He was buried at Port-Royal, whence his remains have been removed to St. Etienne-du-Mont, where he still lies beside Pascal.

Racine is almost the only instance of a great poet who in middle life has renounced his art, as did the painter Fra Bartolomeo and the musician Rossini. The world has perhaps not greatly lost: for twelve complete dramas of Racine exist, and, with all their polish and beauty, their range is very limited and their effect somewhat monotonous. The plays selected for the Positivist Library were:—*Andromaque*, *Les Plaideurs*, *Britannicus*, *Bajazet*, *Iphigénie*, *Phèdre*, *Athalie*. By common consent Racine is the greatest known

master of the French language, and the exquisite grace of his verses has hardly been surpassed in the ancient tongues even by Virgil or Sophocles. In mastery of the resources of the drama, as understood in his age, in pathos and ideal grace, Racine has no modern superior. Voltaire, and many French critics, following the court of his time, Hallam and others in England, looked on him as superior to Corneille. There can be no doubt that this judgment places literary skill before grandeur of conception. We feel Corneille to be a great poet sacrificed to a narrow theory of art: we feel Racine to be a consummate artist who lived to show all of which that theory was capable. [F. H.]

G. Saintsbury: *French Literature*; and also *Life* in *Encycl. Brit.* F. Brunetière: *Manual of Hist. of French Lit.* (Eng. trans.). C. A. Sainte-Beuve: *Portraits Littéraires*, i. Portrait by Rigaud, Toulouse.

VOLTAIRE (*François-Marie Arouet*), b. 1694, d. 1778.

VOLTAIRE (doubtless an anagram for A.R.O.V.T. L.I., *i.e. Le Jeune*) was the literary name adopted at the age of 24 by the third son of François Arouet, a successful notary of Paris, of an ancient family from Poitou. Voltaire was born near Paris in February 1694, and was educated by the Jesuits at the aristocratic college of Louis-le-Grand, where he was early distinguished by his audacity and his ability. In the Calendar Voltaire is placed as a dramatic poet between Racine and Metastasio. In the Positivist Library Comte has placed his *Age of Louis XIV.*, as well as a selection of his dramas. But in neither does he appear as thinker or critic. The present notice will be confined to the dramatic side of his long life and prodigious literary career.

He entered early a brilliant and scandalous society of nobles, was twice thrown into the Bastille, and was twice bastinadoed by victims of his wit. At the age of 32 he came to England, where he passed three years, perhaps the most important of his life: those which give the keynote to his career. The next twenty years of his life were mainly occupied with poetry, and for the most part were passed in a frontier retreat at Cirey, in the society of Madame de Châtelet. After her death, in 1749, he visited Frederick the Great at Berlin, where he lived three years. In 1755 he took up his residence near the Lake of Geneva. At Ferney he lived a life of inexhaustible literary activity till 1778. Then he made a triumphal return into Paris, which he had not seen for twenty-eight years. Three months later he died there at the age of 84 (May 1778). His remains were placed in the Panthéon in 1791. The hostility of Louis XV., of his mistresses, and the Jesuits had compelled this most typical master of French literature to pass almost the whole of his life abroad or in some obscure retreat; and nearly all his characteristic works were published in foreign countries. Comte has

done justice to his marvellous literary influence as a critical force (*Pos. Pol.* iii. 496, 505, 508, 511). But the Calendar is designed entirely as a synthetic and educational instrument, and systematically excludes all merely destructive and revolutionary action. Thus Comte places Voltaire amongst the permanent benefactors of mankind as a poet, not as a philosopher. An artistic synthesis of great men which finds no place for Abelard amongst philosophers, nor for Luther and Calvin amongst reformers, does not place Voltaire under the name of Descartes, but under that of Shakespeare. This volume designedly leaves to others the heroes of all negative and revolutionary movements. In their ranks will be Voltaire's part as a leader of the rationalizing forces, an apostle of intellectual enlightenment, as an important member of the encyclopædist group—above all as the generous mouthpiece of the humanist protest against such iniquities as the condemnation of Calas and La Barre.

Voltaire's poetic career belongs mainly to the first half of his long life. His *Œdipus* (1718) was represented when he was 24; and *Tancred*, the last drama of importance, in 1760. It must be admitted that Voltaire is greatly inferior both to Corneille and Racine as a poet. He has neither massive power nor exquisite pathos. But he is a consummate master of dramatic craft within the lines of the French tragic ideal, which he did much to amplify and complete. He has unerring precision and grace in his command of language; and he is consistently serious, thoughtful, and stately. To enter into the merits of the French stage we must put aside the foolish British prejudice which measures all dramatic poetry by its approach to or distance from Shakespeare. And we must regard its rigorous concentration of action, its narrow limitations to types rather than to individualities, its solemn and monotonous form, as the conditions of art felt to be indispensable. The cultured minds of the century revolted from anything that tended to sacrifice symmetry, clearness, refinement of form, and external canons of measured tone.

Within these canons, and to satisfy these tastes, Voltaire did everything in drama that is possible to one who was a consummate literary artist, not a profound tragic poet. The passion which animated his whole career to teach a manlier spirit and to spread the light of a nobler thought, burns through nearly all his poems, and makes them sometimes rather vehicles of controversy than works of Art. Comte indeed assures us that Voltaire deliberately sacrificed the leading place which he might have obtained amongst the second-class poets, in order to make his plays a means of carrying on the work of spiritual emancipation (*Pos. Pol.* iii. 508). The nine plays selected for the Positivist Library are:—*Brutus*, *Zaire*, *Alzire*, *Mérope*, *Sémiramis*, *Oreste*, *Rome Sauvée*, *L'Orphelin de la Chine*, *Tancrède*. Voltaire's dramas are not indeed controversial pamphlets, as some critics pretend; but the poet never forgets that a retro-

grade religious oppression, and a cruel and enervated autocracy, weighed down the efforts of his age. His dramas were efforts to raise the moral and religious genius of his countrymen. Nor were these efforts in vain : and they are not forgotten. [F. H.]

J. Morley : *Voltaire*. S. G. Tallentyre : *Life* ; *Letters*. Schlegel : *Dramatic Literature*. Several portraits—one by Layillière, C. ; bust, L., statue, Theâtre Français, both by Houdon.

METASTASIO (*Pietro Antonio Domenico Bonaventura Trapassi*), b. 1698, d. 1782.

METASTASIO, the son of one Trapassi of Assisi, a Papal soldier, was born at Rome, January 1698. At the age of ten, the child's wonderful talent of improving his poetry so struck Vincent Gravina, the eminent scholar and jurist, that he adopted the boy, gave him the name of Metastasio (*i.e.* the Changed One, a playful Greek translation of the name Trapassi), undertook his education, and ultimately left him his whole fortune. At the age of 15, the young Metastasio wrote a drama on the Aristotelian model ; at the age of 20 he lost his patron ; but soon afterwards he fell under the influence of the singer and actress, Maria Bulgarini. With her aid he greatly improved the modern opera, his first piece *Dido* being represented in 1724 (*ætat.* 26). In 1730 his fame caused the Emperor Charles VI. to invite him to Vienna, with the title of Imperial Poet and a salary of 3000 florins. There he lived for fifty-two years in the house of his friend Martines, producing a series of dramas, operas, oratorios, and cantatas, loaded with honours by the court and by the public, and in the full tide of prosperity, wealth, and glory. He refused the offer of titles, dignities, crosses, and the crown of poetry on the Capitol, and died at the age of 84, after a life of unbroken success and peace.

Metastasio is nearly the contemporary of Voltaire, being by four years his junior and dying at exactly the same age. He left some 29 dramas, eight oratorios, and 100 other pieces, of which more than 40 editions appeared in his own lifetime. Dr. Burney thus describes him at the age of 74 :—" For that time of life he is the handsomest man I ever beheld. There are painted on his countenance all the genius, goodness, propriety, benevolence, and rectitude which constantly characterise his writings." Matastasio was of most amiable and affectionate nature ; his whole career showed the same sweetness and charm which are the great merits of his poetry. He was musician as well as poet, played on the harpsichord, sang, and composed. Some of his pieces have been set to music by 30 or 40 different composers, amongst whom are Porpora, Handel, Gluck, and Mozart. The principal is the *Clemency of Titus*, the opera of which by Mozart still keeps the stage. They are all classical in subject. Metastasio received unbounded and even extravagant

applause in his own century. Rousseau, in his *Héloïse*, calls him "the one poet of the heart: the only genius who can charm us at once by poetical and musical harmony." Voltaire compared him at his best to Corneille without his declamation, and to Racine without his weakness; and Schlegel calls him the Racine of Italy. He possessed exquisite grace and melody of style; great dramatic skill, and singular tenderness of pathos. His favourite poets were Horace, Ovid, Ariosto, and Guarini. Comte constantly cites him, and regarded him as one of the creators of the opera as well as a most beautiful spirit. His dramas are without individuality, definite character, or tragic power. His grace too often becomes monotonous, and his tenderness feeble. The place which he occupies in the week of Corneille is perhaps due more to the impulse he gave to music than to his own dramatic power. [F. H.]

Vernon Lee: *Studies of the Eighteenth Century in Italy*. Metastasio is buried in St. Michael's Church, Vienna. The Positivist Library contains "Select Works of Metastasio." Bust, C.

ALFIERI (*Vittorio, Count*), b. 1749, d. 1803.

ALFIERI, of a noble Piedmontese family, was born at Asti in 1749, and educated at Turin. He learnt but little Latin, and read no Italian classic but Ariosto. At the age of 16 he found himself with a considerable fortune, and for many years he led a life of restlessness, and unsatisfied aims; between 1765 and 1777, travelling much over Italy, France, Holland, Germany, England, and Sweden. His early life was a search after excitement, but not degraded or debauched, and was filled with the vague Rousseauism and classical republicanism which then dominated Europe. His first drama was produced at the age of 26, as a mere mental exercise. At the age of 28 he became attached to the Countess of Albany, the unhappy wife of the wretched Prince Charles Edward, the Young Pretender. With her he formed an intimate union which lasted through life, and to her he attributes all that was good or enduring in himself. He championed her cause; before long he lived with her; and perhaps after the Prince's death (in 1788) he became her lawful husband, but she never assumed his name.

In the seven years 1777-1782, Alfieri produced fourteen dramas, some of which are still Italian classics, and one or two of which still keep the stage. He laboured seriously long after middle life to improve his education, learned Latin, and at the age of 47 made himself master of Greek. He died in 1803, aged 54, and is buried in Santa Croce in Florence, where the Countess of Albany raised over his remains a sumptuous monument by Canova. Alfieri offers not a few analogies with Byron, whom he preceded by forty years, in his restless, proud, and self-willed temper, in the circumstances of his life, and in generous social aspiration. As a

man, Alfieri has far more dignity and simplicity of nature: as a poet he has far less passion and splendour of imagination. Alfieri, who loved Plutarch and the heroes of antiquity, would admit nothing worthy of tragedy but the heroic, the terrible, and the imposing. He disdained the courtier-like tenderness of Metastasio, and held that the task of tragedy was to cleanse the soul by pity and terror. His dramas are uniformly noble and stately in general conception: but they are devoid of individual character, grace of form, or tragic movement: and, as Alfieri is not Æschylus, his persistent appeal to the terrible and the sublime is often tedious. The style is severe almost to dryness; the plot simple almost to dulness; and the scene often bare to coldness. *Antigone*, *Saul*, *Myrrha*, and *Rosmunda* are still read and performed.

His own *Life of Himself* is a fair and striking study. Madame de Staël thus characterises him:—"His tragedies have the monotony of energy, as those of Metastasio have the monotony of sweetness. Such is the profusion of magnanimity, such the exaggeration of crime in them, that the true character of men is lost. He is a poet accidentally transplanted from antiquity to modern times." Alfieri, though perhaps as a classical poet superior to Metastasio, has none of his tenderness and charm, and had far less influence on his age. Augustus Schlegel has well said:—"He aimed at being the Cato of the theatre; but he forgot that, though the tragic poet may be a Stoic, tragic poetry must never be stoical. We praise his tragedies rather as the actions of the man than as the works of the poet." Although, like Byron, Alfieri was full of disdain for revolutionary anarchy, he belongs essentially to the new era; and his monumental style and powerful character deeply impressed the generation which succeeded him. More than any other poet, he has helped to raise Italian literature out of the fatal tendency towards *morbidezza* which has more or less afflicted it ever since the time of Boccaccio.

[F. H.]

J. C. L. Sismondi: *De la Littérature du Midi de l'Europe.* The Positivist Library contains "Select Works of Alfieri." Portrait by Fabre, Montpellier.

SCHILLER (*Johann Christoph Friedrich von*), b. 1759, d. 1805.

SCHILLER was born at Marbach, 10th November 1759. Whilst at the Duke of Würtemberg's Military Academy at Stuttgart, he wrote *The Robbers* (1781); a year afterwards it was performed on the stage with the result that he, then a subaltern officer, was placed by the Duke in arrest, and then received an order thenceforth to abstain from literature. Rather than comply Schiller fled by night across the border. This *Hegira* committed him to a literary career as the only one open to him, and, working with the general movement of the time, determined the spirit and theme of his early productions—Freedom. For many years he led the painful life of a penniless exile, and but for generous benefactors (some of them

strangers unknown to him in foreign lands), he must have succumbed. From poetry he turned to prose for a livelihood, and, fresh from his drama of *Don Carlos* (1787), he wrote his *Revolt of the Netherlands*. This procured him a Chair of History with a nominal stipend at the University of Jena, and there he composed his second historical work, *The Thirty Years' War*. In the interval (1790), he had married Charlotte von Lengefeld, and four years later he entered on his friendship with Goethe—the two events which helped to give him inward happiness and to stimulate his spiritual activity in a period which otherwise, from poverty and ill-health, was one of sore trial. At length his time came. In 1799 he was established by the Duke of Weimar at his Court on a modest pension. The closing years of his brief life he spent at Weimar with no drawback but the constant one of shattered health, in a happy home, amid public honour, side by side and hand in hand with Goethe; the two labouring incessantly by production, by criticism, by the conduct of the court stage, and every practical endeavour to ennoble the drama and elevate their country by art. Schiller's finest and most mature works are his *Wallenstein* (1799), and his *William Tell* (1804): and it is the historical drama of Germany which he represents in the Calendar. He also wrote many beautiful ballads and minor poems (*Song of the Bell*, *To Joy*, *The Walk*, etc.). He died at Weimar, May 1805, aged only 45.

Schiller was an idealist. Hence a tendency to unreality, to a certain feverish exaltation both in language and sentiment, to impassioned rhetoric as a substitute for poetry. But what gifts, what virtues were his! A nobility of soul, proof against poverty, dependence, ill-health, success: an enthusiasm for his art, but ever with a view to the welfare of mankind, an abiding sense of the "priest-like function" of the poet. If indeed the poet's mission is to present pure and elevating ideals of life, Schiller may take high rank. Freedom from oppression, temporal and spiritual; freedom from sloth, ignorance, and vice: love of the family, unity in the State, feeling for the race, benevolence in the sovereign, loyalty in the statesman, the citizen, and the friend; the courage of the warrior, the blessings of peace and ordered life; the self-sacrificing aspirations of youth, of lovers, and all ingenuous souls; the nobility of woman—these are the themes which Schiller sang with glorious vehemence: ancient ideas, intelligible, indeed familiar to all, but needing to be revived for the depressed generation in which his lot was cast. Schiller's dramas were a trumpet-call to what was best and noblest around him: his verses stirred the spirit which, when the time came, was to achieve the liberation of his country: and they have justly found a lasting home in the German heart. [G. L.]

Life by Heinrich Düntzer, Leipsic, 1881 (Eng. trans., 1883). *Life* by T. Carlyle; by James Sime, 1882; and by H. W. Nevinson. *Wallenstein* is translated by Coleridge, *Tell* by Sir T. Martin (Bohn's Stand. Lib.). Schiller is buried in the Cemetery at Weimar. Portrait by Graff, Dresden; bust by Danneker, Weimar.

CORNEILLE (*Pierre*), b. 1606, d. 1684.

CORNEILLE, the creator of the French drama, named Pierre after his father, a legal official of Normandy, was born at Rouen, in a house recently to be seen *Rue de la Pie*, 6th June 1606. His long life was one of peace, with no other incident than the production of his plays. He is contemporary with Milton: born two years earlier, and retiring about the epoch of Milton's death. He was educated by the Jesuits, for whom he ever afterwards felt respect and gratitude; succeeded his father in his legal post, and practised law "without liking and without success." At the age of 23 he produced his first drama, a comedy which had some success in Paris, and introduced him to the dramatic company of Richelieu. It was followed by other pieces of no great value. But at the age of 30, Corneille revealed his power as a great tragic poet in *Medea* and *The Cid* (1636). The French classical drama had been founded by the *Cleopatra* of Jodelle, 1552; but in *The Cid* Corneille at once carried it to perfection.

In spite of the rancorous hostility of Cardinal Richelieu, who had the folly to be jealous of the genius and offended by the independence of his pensioner, *The Cid* at once roused the widest enthusiasm, and carried the public voice with it against the servile criticism of the Academy. It was translated into all European languages. In 1639 Corneille presented the noble tragedy of *Horatius*, which with grand irony he dedicated to the Cardinal. *Cinna*, *Polyeucte*, *Pompée*, *Le Menteur*, *Rodogune* were all produced within the next five years, and mark the highest point of the poet's genius. These tragedies are full of a noble spirit, worked out with consummate tragic power, and they exhibit the classical drama of France at its best, with its sustained and stately images of heroism, of pity, and of power. Corneille himself preferred *Rodogune*; but in spite of a certain weakness, of which the critics have made the most, *Polyeucte* is usually regarded as the most impressive work of the poet's genius. It is unquestionably the grandest Christian drama extant. *Le Menteur* (1642) is an admirable comedy, which still keeps the stage, and to which Molière was himself indebted. It is earlier than Molière's *l'Etourdi* by eleven years: and thus Corneille, whose *Cid*, before the birth of Racine, had created French tragedy, by his *Menteur* created French comedy, before Molière came of age.

After *Rodogune*, Corneille for seven years produced a series of plays, hardly inferior, down to *Pertharite* (1653, *ætat.* 47). *Pertharite* was only performed twice, and was regarded by the public as a failure. The proud and sensitive spirit of Corneille was deeply wounded by this unmerited rebuff; and he publicly announced his withdrawal from the theatre. He retired and devoted himself to translating the *Imitatio Christi* into verse. But six years after *Pertharite* he was induced by Fouquet to take up the pen with

Œdipus as his subject, and ten years after it he produced the fine and successful drama of *Sertorius* (1663). Then again for twelve years more, the patriarch of the French stage continued to produce dramas: all having touches of his ancient fire, but with visible marks of declining power. He was already 61 when Racine achieved astonishing success with *Andromaque* (1667), and from that time Corneille suffered deeply from the tide of popularity which set towards his young rival. The critics and the public were divided, but unequally. Madame de Sévigné and Louis XIV., in great measure, supported the claims of the elder poet. Conscious of his genius, his independent dignity, and his vast services to art, the veteran felt his last years clouded in bitterness, and with a sense of ingratitude and desertion. He produced *Pulchérie* and *Suréna*, the last fruits of an old tree (1673, 1675), "both worthy of the old age of a great man," as Fontenelle declares. Then he finally renounced the drama (*ætat.* 69). He lived yet nine years more; and died in profound peace and retirement, at the age of 78 in 1684. He was buried in the Church of St. Roch, at Paris, where his tomb is still seen.

Fontenelle, his nephew, has written the *Life of Corneille*, a piece full of interest and enthusiasm. He was fairly tall and of full habit, with a simple and plain air, always careless of his person. His countenance was pleasant, with marked features and eyes of fire; his speech slow, and his conversation poor. He gave attention to literature, history, and politics, mainly as they bore on the theatre; but he cared little for any other knowledge. He spoke little. "To find the great Corneille, men had to read his works." He was melancholy, and of low spirits, brusque in manner, and at times, in appearance, rough; but with a fine nature at bottom—a good father, a good husband, tender and full of friendliness. He was prone to love, but never to libertinage, and lived an exemplary life with his wife, a daughter of General des Andelys, by whom he had three sons, and their stock still survives. Corneille's spirit, says his nephew, was haughty and independent; without suppleness or address of any kind. He never loved the court, and went there only as a stranger. Business of any kind filled him with aversion and fear. He was utterly incapable of affairs; and, in spite of his gains, he remained poor. He had a deep consciousness of his own powers. Though overwhelmed with praises, he showed no vanity; but the preference given to his inferiors wounded him to the soul. From first to last he was profoundly religious; and was only sustained in his work as a dramatist by the consciousness that he had purified and ennobled the stage, and had made it a school of virtue and high feeling.

Few poets have ever been so systematic; so careful to review and explain their methods. Like Wordsworth, he has left elaborate dissertations on his own poetic theories, and on each of his plays. The three *discourses* and the analyses (*examens*) of his dramas are

of the utmost value to understand his ideal. He carefully edited his plays, and even critically reviewed them after publication. In all this he is the very antithesis of Shakespeare, the least careful and self-conscious of all poets. Corneille, who created the French classical drama, worked out the canons of his art advisedly. The severe conventions were his free choice; for in his early career he had written pieces of almost pantomimic extravagance. If he wore chains, he forged them for himself with the utmost deliberation and forethought. He is continually reviewing and criticising himself: "*J'ai la plume féconde et la bouche stérile.*" After *Pertharite* (1653), he writes "*Solve senescentem,*" etc. etc., and again in 1676, "*Et les rides du front passent jusqu'à l'esprit.*"

In the forty-six years of his poetical activity he produced thirty-three dramas, with about 70,000 lines, besides several volumes of poetry and translations. It is but too true that he justified the fear, *ne peccet ad extremum.* The current *Théâtre de Corneille* contains only eight of his dramas. His later plays are hardly remembered by name. As a man, Corneille reminds us of Dante; as a poet his affinity and his sympathies are with Lucan. He was himself the proud and unbending hero whom he loved to represent. The motto he choose was: "*Et mihi res, non me rebus submittere conor.*"

This is not the place to describe the classical drama of France, which Corneille created, and which ruled without a rival for two centuries, down to the time of V. Hugo. All art has its conventions and its canons. And, though the conventions and the canons of the Cornelian drama are wholly unlike those of Shakespeare, Calderon, and Goethe, they have been expanded and praised by some of the greatest masters of the literary art the modern world has known; and for centuries they have satisfied and held spell-bound the most highly-trained audiences in Europe. Hugo and his school have, even in France, broken down the exclusive authority of the drama of Corneille and Racine; and *Hamlet* is now played in Paris with all the resources of scenic and historical surroundings. But the greatest living actors and the most critical modern public still hold by *The Cid, Horace,* and *Andromaque.* The range, the contrasts, the fancy, the imagination, the movement, the individuality, the imagery of the Shakesperian drama, seem to them too dearly bought in pure tragedy. They deliberately prefer intense concentration of interest; sustained and statuesque definition of character; a conventional stateliness of form; and subtle elaboration of an artificial rhythm. And they do not perceive what to English and German ears is so obvious—that, where this high ideal is not maintained, monotony succeeds to interest; mere "types" take the place of "characters"; conventional forms become the pedantry of academicians and chamberlains; and elaboration too often runs to seed in a sickly artifice of words. But even English and German ears can feel the great successes of the classical drama at its highest: its nobility, dignity, heroism, and pathos: its monu-

mental strokes of magnanimity and terror ; the mass and keenness of its impressions on the audience. Still less needful is it here to enter on the secular comparison between the merits of Corneille and Racine. His age, Voltaire, and perhaps the majority of French critics, have preferred Racine—certainly the greatest master of the French language, if he be not one of the greatest masters of language in any tongue. It is plain that Racine had the finer culture, the more exquisite taste, the deeper tenderness, and the more subtle skill as an artist. And, if these qualities be the supreme ideal of the classical drama, the author of *Andromaque*, *Phèdre*, and *Athalie* had no superior before or since. As Corneille continued to compose over a period more than twice as long as Racine, and as he wrote three times as many pieces, he fails far more often. But in all the greater plays of Corneille we feel that we are in the presence of a lofty and moving spirit, who fires us with his own sense of honour, patriotism, devotion, and pity. His own people always speak of him as "the great Corneille." As with Æschylus, we feel that the poet himself is not a little of the hero and the prophet, speaking on the stage with his own voice. He is not seldom tedious : but he is never mawkish, mean, or sensuous. His method tends to declamation : and admits speeches of 50 or even 100 lines without break. But even his declamatory passages breathe a manly and generous nature ; and at their highest, they rise into a truly majestic music. His scenes of tenderness are sometimes frigid ; and his stage management is often bald and awkward. But we always feel that his plays are the work of a great man labouring with intractable resources : not the work of an ingenious artist, whose literary accomplishments are greater than his own soul. Corneille is thus, not merely the creator and chief of the French drama, but one of the noblest teachers and one of the finest types of the French race : worthy, by himself as well as by his works, to rank as the head of the historical dramatists of France, Italy, Germany, Holland, and Spain. [F. H.]

Life, by Fontenelle. E. Faguet : *Corneille* ; *En lisant Corneille*. Schlegel : *Dramatic Literature*. Hallam : *Literature of Europe*, vols. iii. and iv. G. Saintsbury : *French Literature* ; and also LIFE in *Encycl. Brit.* C. A. Sainte-Beuve : *Nouveaux Lundis*, vii. *Portraits Littéraires*, i. Guizot : *Corneille and his Times*, Eng. trans. In his *Positive Library*, Comte adds to the acknowledged masterpieces of Corneille, viz., *Le Cid*, *Horace*, *Cinna*, *Polyeucte*, *Pompée*, *Rodogune*—the products of his best period—the following seven plays of his later time :—*Héraclius*, *Nicomède*, *Pertharite*, *Œdipe*, *Sertorius*, *Othon*, *Pulchérie*. These latter we may suppose to be chosen for their fine scenes, noble types, and historical idealisation. As tragedies they are utterly inferior to *The Cid* and *Polyeucte*. Portrait by Lebrun, I.

ALARCON (*Ruiz de*), d. 1639.

Ruiz de ALARCON was born in the second half of the 16th century, in the province of Tasco in Mexico : and he held a civil post of importance in that colony. In 1622 we find him in Madrid as a dramatic author. He published twenty plays : but he never

attained the popularity of Montalvan, Guevera, or other contemporary writers, and the dedications and prefaces to his volumes indicate his resentment of this comparative neglect.

His *Truth Suspected*, one of the two dramas selected by Comte, takes for the hero a man of many amiable qualities, but of incurable mendacity. Escaping with astounding ingenuity from one falsehood to another, he is driven at last to the precipice of truth-telling and shame. This play gave rise to the *Menteur* of Corneille, who remarks in the preface to this play, which he at first supposed to be written by Lope de Vega, that he knows nothing of its kind, either in ancient or modern literature, that can be compared with it for wit and for ingenuity of incident and constructive skill. In the concluding analysis of his own play, written subsequently, Corneille goes so far as to say that he would give his two best pieces for the credit of having written this comedy of Alarcon.

A second play, selected by Comte, *Walls have Ears*, deals with a parallel subject, the results of slander and mischief-making.

[J. H. B.]

G. Ticknor : *Hist. of Spanish Literature.* See also under LOPE DE VEGA.

MADAME DE MOTTEVILLE (*Françoise Bertaut*), b. 1621, d. 1689.

Françoise Bertaut, to whom we owe the graceful and sensible memoirs of the French Court under Richelieu and Mazarin, was born probably about 1621, in a family of good position both at court and in the Church. Her father was Gentleman of the King's Chamber, whose brother was Bishop Bertaut, a poet of some repute ; her mother, of a noble house in Spain, was attached to the person of the Queen, Anne of Austria, and acted as her private secretary. By her mother the young Françoise Bertaut was devoted [*donnée*] to the Queen even from childhood, 1628. But the Cardinal de Richelieu, always suspicious of a Spanish *entourage*, insisted on the intelligent child being removed from court. Her mother took her away into Normandy (*ætat.* 10), where she was brought up with the greatest care and had an excellent education. In 1639, at the age of 18, she was married to M. Langlois de Motteville, President of the Exchequer of Normandy, a man of wealth and rank, then aged 80, who had already buried two wives. This ill-assorted union Françoise accepted with good feeling and irreproachable conduct. In two years she was left a widow. She resolved to maintain her liberty and her single estate. Soon, on the death of Richelieu and Louis XIII., Madame DE MOTTEVILLE returned to her place near the person of Anne, now become Regent in the name of her son Louis XIV. (1643). Her official position was that of Lady of the Chamber ; her real part was that of confidential friend.

She remained in the court of Anne for twenty-three years, until the death of her mistress in 1666. Then she retired from the world, and devoted her life to good works and the completion of her memoirs. She had a place in the society of Madame de Sévigné. After a life of exemplary goodness and discretion, she died in 1689, at the age of 68.

Her *Memoirs* were first published in 1723, in five volumes. They recount the inner history of the French court from 1615 to 1666, giving in curious detail the career of Anne from the date of her marriage. Anne of Austria, daughter of Philip III. of Spain and wife of Louis XIII., is the centre of these reminiscences, which were begun simply as a personal recreation, in order to record a true portrait of her beloved mistress. For the period from 1615 down to 1643, to which four chapters are given, the sources of her information are her own mother and the Queen. From 1643 to 1666, the events of which occupy the remainder, the writer is an eye-witness, and her observation is of the highest value as a secret history of the career of Mazarin. She was the ideal confidante of a sovereign—discreet, reticent, cautious, observant, inquisitive, and laborious ; with complete self-command and patience ; never-failing in devotion to her mistress, or in honour and respect towards herself. She is the most sensible and reasonable of women, the most judicious and cool of observers.

As historian Madame de Motteville is neither profound nor ambitious, but she knew personally the principal actors in this history. She paints what she sees ; and she repeats what she knows. And she does this with such calm and measured good sense that Sainte-Beuve has compared her to Philippe de Comines. She is not often brilliant, epigrammatic, or satirical, never sacrifices truth to effect as a story-teller, and never suffers her imagination or her wit to lead her into the region of romance. She is sober, at times to tedium, and moral to the verge of commonplace. But as the view of a calm, clear-sighted, true-hearted woman, placed for a generation in the very centre of European politics, her judgment and her insight are of high historical value. The *Memoirs* are included by Comte in the historical section of the Positivist Library. Here they are placed under the month of the dramatists, with four other prose writers of history, as Froissart and Joinville are placed in the month of Dante : all are painters of contemporary manners and character.

[F. H.]

C. A. Sainte-Beuve : *Causeries de Lundi*, v. K. P. Wormeley has translated her *Memoirs* with Sainte-Beuve's *Causerie* as introduction. Madame de Motteville was buried at Chaillot, near Paris.

MADAME ROLAND (*Marie Jeanne Phlipon*), b. 1754, d. 1793.

Madame ROLAND, the most extraordinary woman who figures in the French Revolution, is placed in the month of Shakespeare as subordinate to Madame de Motteville, simply as a painter of

manners and character and not at all as a politician. As all the actors in the Revolution are, for reasons stated, excluded from the scheme represented in the Calendar, Madame Roland will be treated here in accordance with the plan of this work as an artist and not as a woman of action. She was the second child of one Pierre Gratien Phlipon, an engraver of Paris, a man of poor character and moderate abilities. Her mother, Marguerite Bimont, was a woman of tender, saintly, and long-suffering temper. The child exhibited extraordinary intelligence and most precocious powers both of character and of mind. At eight she was absorbed in Plutarch: soon she fell in with Télémaque, Tasso, Voltaire, Rousseau, and the *Lives of the Saints*. At the age of 11 she spent a year in a convent, and thought of taking the veil. At 17 she was a woman of wide reading, who already wrote letters singularly eloquent and thoughtful. For nine years more, the proud, dreamy, passionate beauty shut herself up with her books and her thoughts, refusing all suitors, and disdaining the world around her. At the age of 26, out of respect and prudence rather than love, she married Roland de la Platière, a man of noble heart, great acquirements, and incorruptible integrity; a demure, reserved, laborious man of business, twenty years her senior.

The marriage was happy, passionate devotion on his side, unswerving loyalty and duty on hers, even when she came to love the brilliant young Buzot. For eleven years they lived quietly in the provinces: he gradually becoming known as a masterly economist, she as a woman of genius and aspiration. As the Revolutionary movement grew and deepened, the strong nature and the Republican convictions of the two Rolands bore them to the front of the battle. They finally settled in Paris at the beginning of 1791. In the salon of Madame Roland was formed the Girondin Party. Roland became Minister of the Interior, March 1792, and deputy. Thenceforward the history of the Rolands is bound up with that of the Revolution, and it cannot be told in these limits. With the fall of the Girondins the Rolands were condemned to death. In May 1793, she was arrested by order of the Convention; passed five months in prison, where she wrote her fascinating *Memoirs*, and was executed 9th November 1793. Her remains were flung unrecorded into the cemetery of the Madeleine, where they still lie near those of Marie Antoinette, Charlotte Corday, Danton, and so many more. Roland stabbed himself on hearing of her death. Thus perished, in the bloom of her beauty and her genius, a woman of powerful and deeply romantic nature, of brilliant intelligence, vast ambition, and passion for intrigue.

It is not necessary here to discuss her influence on politics, the defects of her character, or the wisdom of her acts. In consummate painting of portraits, in vivid reproduction of scenes that she witnessed, Madame Roland has no superior in modern literature. A strange interest is imparted to her *Memoirs* by a genius that recalls

Rousseau in its frankness, its vehemence, its somewhat irregular heat, as it recounts the wonderful adventures which befall the Parisian *bourgeoise*. In judgment, in breadth, and in calmness of vision, she is plainly inferior to Madame de Motteville. Her importance as a historian is far below the charm of her literary art. [F. H.]

I. A. Taylor: *The Life of Madame Roland* (1911). C. A. Sainte-Beuve: *Portraits de Femmes*; *Nouveaux Lundis*, viii. The Memoirs have been trans. into English. She was buried where the Parc Monceau now is.

MADAME DE SÉVIGNÉ (*Marie de Rabutin-Chantal*), b. 1626, d. 1696.

The most graceful of all writers of letters, Marie de Rabutin, was the only daughter of the Baron de Chantal, of a family of much distinction both in peace and war. She was born in Paris, February 1626. Her father was killed in the following year, fighting against the English in the Ile de Rhé, and her mother died a few years later. From the age of ten the girl was educated by the excellent Abbé de Coulanges, her mother's brother, under whose paternal care she received the best education of her time. The poets Ménage and Chapelain were amongst her teachers. She learned Latin, Italian, and Spanish, and she passed several years in the court of Anne of Austria. At the age of 18 she married the Marquis de Sévigné, a soldier of an ancient and wealthy family of Bretagne—a spendthrift, a profligate, and a ruffian. It was said that she loved him without any respect; whilst he respected her without any love. He was killed in a duel in 1651, leaving his young wife, then aged twenty-five, with one son and a daughter.

The widow, still at the height of her youth and beauty, rich, brilliant, and already famous, devoted her life to her two children; and for forty-five years she lived for them alone, and chiefly for her daughter. During the infancy of her children she remained in complete retirement; but about 1654 she returned to society; and from henceforth she lived in the centre of all that was most distinguished in the French world. No breath of scandal ever touched her conduct; nor has the gossip of a scandalous and satirical age brought a single charge of any kind against her memory. She was courted in vain by Turenne, the Prince of Conti, the Controller Fouquet, the poet Ménage, her graceless cousin Bussy Rabutin, writer of libellous memoirs and daring adventurer, together with a score of other admirers. The beautiful widow rejected all without making an enemy. "You are the only woman in France," wrote the impudent Bussy, "who can compel a lover to be satisfied with friendship."

Madame DE SÉVIGNÉ was a member of the literary coterie of the Hôtel Rambouillet, and was formally classed as a *précieuse*. She is scarcely touched with the breath of its affectation: her simple nature

and exquisite grace preserved her from the taint. In due course she married her beloved daughter to the Count de Grignan, a nobleman of Provence, a widower past middle age, but a man of high position, good character, and much merit. His appointment as Governor of Provence (1669) removed him and his family to Grignan (Drôme), separated the doting mother from her only daughter, and gave the world the most famous and delightful of all private letters. For twenty-seven years Madame de Sévigné continued to despatch letters to her daughter almost daily, whether she lived in Paris or in her country seat in Brittany. She died at Grignan in 1696, at the age of 70, from an attack of smallpox, happy in the thought that she did not survive her child.

Her letters, which fill fourteen volumes, are the most beautiful perhaps in literature. They are real budgets of actual news for home reading, exquisite in style, simple, delicate, lively, and ingenious. They are the reflex of a pure, sensitive, observant, and acute mind, artlessly recording from day to day all that passes in a most brilliant and rich society. As a picture of contemporary life and manners they have no superior in modern literature. Occasionally, it is obvious, the writer is conscious that she possesses a style, and that her letters are becoming a part of the literature of the age. No fault has ever been imputed to them, except that they are too prone to treat painful events with the air of badinage which has grown into something of a mannerism. Nor has any defect been charged against the pure and just nature of the writer, except that she is immoderately doting to her daughter, quite foolishly exaggerates her qualities, and most preposterously overrates her importance. To this venial extravagance we owe the most charming correspondence that time has spared. On all but her own children and their concerns, Madame de Sévigné has a judgment as sound as it is genuine and natural. [F. H.]

A. I. Thackeray : *Madame de Sévigné.* C. A. Sainte-Beuve : *Portrait de Femmes*; *Causeries du Lundi*, i. Madame de Sévigné is buried at Grignan. Portrait by Mignard at Angers (copy, C.).

LADY M. MONTAGU (*Lady Mary Pierrepont*), b. 1690, d. 1762.

Lady Mary Pierrepont was the eldest daughter of the first Duke of Kingston by Lady Mary Fielding, daughter of the third Earl of Denbigh. She was born at Thoresby, county of Nottingham, in 1690, being through her mother second cousin of Henry Fielding. At the age of four she lost her mother, when her father the Duke concentrated all his affection on the child, gave her every advantage in education, and introduced her as a wit and a "toast" to his own gay guests. The girl had a complete classical and modern training, and read widely and at will. At the age of 22, after a long and somewhat literary courtship, she married Edward Wortley

Montagu, a young man of good family, of excellent education, and unexceptionable character. He was a cousin of the Earl of Halifax, First Lord of the Treasury, became member of parliament, and then entered the Ministry.

For some years Lady Mary MONTAGU was in the centre of the best society of London. She there became intimate with Addison, Pope, Congreve, and the wits of the time. In 1716, when the young wife was of the age of 26, her husband was named ambassador at Constantinople. There she resided for two years. On her return (*ætat.* 28) she settled at Twickenham, became the intimate friend of Pope, and made herself the centre of a famous literary and elegant circle. She had enemies, rivals, and victims ; but no suspicion has ever touched her conduct. Her famous quarrel with Pope was, doubtless, caused by the rebuff she administered to the then senile poet. In 1739 (*ætat.* 49) she left England for her health, settled in Italy, or in Savoy, passing her summers at Lovere, on the Lake of Iseo. She never saw her husband again ; and on his death (1761) she returned to England at the instance of her daughter. Her own death followed in 1762. She has a monument in Lichfield Cathedral. She is famous for having introduced from the East the practice of inoculation, of which she became the enthusiastic apostle.

Her place in this Calendar is due to her famous *Letters*, the most elaborate in English literature. They were first published surreptitiously in 1763 ; but no complete collection existed until the nineteenth century. Her great-grandson, Lord Wharncliffe, published her entire works in 1836. Her letters are, beyond question, admirable pictures of men and manners, and her description of Eastern life is of the highest value and interest. A certain want of tenderness and an occasional coarseness belonged to her age rather than to her nature ; but as a painter of social life she has no English superior. [F. H.]

G. Paston : *Lady Mary Wortley Montagu and her Times* (1907). A Selection of her Letters is published in Everyman's Lib. Portrait by Kneller.

LE SAGE (*Alain René*), b. 1668, d. 1747.

LE SAGE was born at Sarzeau, near Vannes, in Brittany, in 1668, the son of a notary of some substance. He lost both parents in childhood, and a wicked uncle squandered his small fortune. He was educated by the Jesuits at the College of Vannes, which he left at the age of 18. He was called to the bar, but failed of success. Marrying the pretty but dowerless daughter of a citizen of Paris at 26, he turned for a livelihood to literature. Until nearly the age of forty Le Sage worked on in obscurity and want, pouring out a multitude of plays, stories, and translations without novelty or merit. In the Abbé de Lyonne he found a protector who turned his attention to Spanish literature. The *Diable Boiteux*, which

we call the *Devil on Two Sticks* (1707), made a sensation. It was suggested by the Spanish of Guevara (q.v.); but Le Sage made it entirely original and French. *Turcaret*, an excellent comedy of manners, followed shortly afterwards (1709), but was furiously opposed by a clique. His great work, *Gil Blas*, appeared first in 1715, but was not completed until 1735 (*ætat.* 46-67). He continued to pour out an immense number of plays, operettas, and stories which have no permanent value, and which failed to procure him a competence. In his old age, poor, infirm, and deaf, he retired to Boulogne where his son was canon. He retained his cheerful mind and a few friends, and died in 1747 in his 80th year.

His great work, *Gil Blas*, which is in the Positivist Library, is one of the most brilliant pictures of life in modern literature. It is saturated with Spanish romance, and in parts it is imitated from Quevedo, Cervantes, Espinel, and others. The foolish suggestion that it was translated from a Spanish source is entirely obsolete. *Gil Blas*, with all its strong Spanish colouring and its obvious Spanish source, is intensely original and essentially French. The critics of all nations combine in praise of the instinctive genius for human character, the marvellous life of the tale, and the natural ease with which the events seem to grow out of the situation, and the persons develop their inner nature. *Gil Blas* has indeed little of the dramatic skill with which Fielding, his pupil, has brought to a *dénoûment* a series of plots ingeniously interwoven. But the story is so admirably varied, and its issue is so natural and true to life, that no weariness is felt. The growth of the character of *Gil Blas* himself is perhaps the most skilful point in the entire work. In variety, life, and truth, Le Sage ranks amongst the greatest masters of the comedy of human nature. [F. H.]

C. A. Sainte-Beuve: *Causeries du Lundi*, ii. G. Saintsbury: *French Literature*, and LIFE, in *Encycl. Brit.* F. Brunetière: *Manual of Hist. of French Lit.*

STERNE (*Laurence*), b. 1713, d. 1768.

Prebendary of York Cathedral and country parson in Yorkshire, but essentially a dramatic artist and wit, STERNE took sudden rank as a fashionable novelist by publishing in 1759 the first two volumes of *Tristram Shandy*. Other volumes followed; and *A Sentimental Journey*, immediately before his death: both works were left incomplete. Sterne suffered much from lung-disease, but his vivacious spirit never languished. Seeking health, he made various journeys in France, of which *more suo* he tells. He died in London and was buried in the cemetery in the Bayswater Road. (Portrait by Reynolds, also by Carmontelle.)

Domestic or travelling scenes, studiously trivial for the most part, a few eccentric, highly significant characters (his own included) drawn to the life of 18th century manners; and with these, inter-

woven in a familiar medley of observation, sentiment, and daring drollery—philosophic "opinions" upon Human Nature—such is Sterne's work. "Yorick" is the name he loved to give himself. He thus portrays several characteristic features of the Intellectual Revolution: religious decay; antique duty surviving in obscure military worthies; scientific curiosity; sense, feeling, and wit, triumphing over metaphysic and theology; a vague Deism consecrating kindness, compassion, and æsthetic impulse, but rejecting rule and licensing sentimental and moral extravagances, especially indecency. His best characters shine with delightful affection, but he gives no fine type of womanhood. As joyous satirist, Sterne owed most to Rabelais, Cervantes, and Molière: he himself became to Germany and France, as well as England, a leader of Prose Romance. [V. L.]

H. D. Traill: *Sterne* (Eng. Men of Letters). W. S. Sichel: *Sterne*.

MADAME DE STAAL (*Marguerite Jeanne Cordier de Launay*), **b. 1684, d. 1750.**

The graceful writer known as Madame DE STAAL was the younger daughter of an obscure painter named Cordier, who was driven into exile and died in England. Her mother then resumed her maiden name of de Launay, and devoted herself to the education of her two daughters. They were brought up at the Abbey of St. Sauveur, at Evreux. There Marguerite de Launay, the favourite of Madame de Grieu, received a fine education, was named Prioress of Saint Louis at Rouen, and was treated as a lady of distinction. She studied Descartes, Fontenelle, and Malebranche, and carried on an active correspondence with many eminent persons. At the age of 26 she was presented to the Duchesse de La Ferté, with whom her sister was in service, and she was treated by the Duchess with a mixture of favour, caprice, and tyranny, charmingly described by her victim.

By the Duchess, Mademoiselle de Launay was introduced to the Duchesse de Maine, wife of a legitimated child of Louis XIV., possibly having ultimate rights to the succession. The Princess took her into her service as lady's maid, and renewed the favour, caprice, and tyranny of the Duchesse de La Ferté. With her the young De Launay remained for 40 years. She lost her position as brilliant woman of the literary and social world, and was treated as the confidential servant of the Princess. Fontenelle recognised and reported to the Princess the genius of her maid, who was constantly employed both in the amusements and the ambition of her mistress. Under the Regency, the conspiracy of the Duc and Duchesse de Maine against the Duc d'Orléans led to the arrest of the entire family and their suite. Mademoiselle de Launay was thrown into the Bastille, where she passed two years (*ætat.* 34-36). On her

release the Princess again claimed her, with promises of finding her a husband, and with the offer of a post in her court.

The helpless Mademoiselle de Launay served her imperious protectress for fifteen years more. At last she accepted an officer of the Swiss Guard, the Baron de Staal, an honest and elderly widower with two ill-tempered daughters (1735, *ætat.* 51). "The baron," she tells us, "under promise of promotion, consented to take a wife who had neither birth, nor fortune, nor beauty, nor youth." With her respectable husband she lived peacefully, to the last the creature of her exacting mistress. She died near Paris, 1750, aged 66. Her *Memoirs*, published 1755, stand in the front rank of the personal anecdotes of her time. She is the French Miss Burney. Her simplicity, truthfulness, and vivid portraiture of manners and character render her worthy of a place amongst the most subtle artists who have described the great human comedy.

[F. H.]

C. A. Sainte-Beuve: *Derniers Portraits Littéraires*. Madame de Staal is buried at Gennevilliers.

MISS EDGEWORTH (*Maria*), b. 1767, d. 1849.

Maria EDGEWORTH was the eldest daughter of Richard Lovell Edgeworth, of Edgeworthstown, co. Longford, Ireland. Her father, heir to a considerable estate, was a man of vigour and originality of mind, the actual inventor of many improvements in agriculture and industry, the writer of several treatises on scientific and social questions. Miss Edgeworth's girlhood was spent in England, at school, and with her family at Lichfield, where a brilliant coterie gathered round Dr. Erasmus Darwin and the eccentric philanthropist, Thomas Day. In 1782, Mr. Edgeworth removed with his numerous family to Edgeworthstown, and there Miss Edgeworth passed the most active years of her life in the care and education of her brothers and sisters, in literary and practical work for her father, and in close and sympathetic intercourse with the tenants on the estate. It was at Edgeworthstown that her most delightful stories were written. She is best known in this country by her exquisite little vignettes of peasant child-life. Such stories as *Simple Susan*, *The Little Basketmakers*, *The Hidden Treasure*, are models of easy graceful writing and poetic appreciation of pastoral life. Miss Edgeworth in these idylls may be said to be the prose Morland of our literature. The novels are now somewhat antiquated in style, though they are full of brilliant character sketches. In *Castle Rackrent* and *The Absentee*, we have pictures of life upon the land, the relations of landlord and tenant, drawn by a master of humour and pathos, a close and sympathetic observer of men and things. *Castle Rackrent* soon had a continental reputation, and was translated into several languages. Sir Walter Scott, in his General

Preface, says of these Irish tales that "Miss Edgeworth may be truly said to have done more towards completing the Union than perhaps all the legislative enactments by which it has been followed up:" and again he says of his own work: "I felt that something might be attempted for my own country of the same kind with that which Miss Edgeworth so fortunately achieved for Ireland." Her principal works consist of *Moral Tales*, *Popular Tales*, *Parents' Assistant*. *Tales of Fashionable Life*, *Patronage*, *Belinda*, *Castle Rackrent*, *The Absentee*, and various essays. Her place in the Calendar as an adjunct of Madame de Staal would seem to be due to her admirable pictures of character and contemporary manners. [E. B. H.]

E. Lawless: *Maria Edgeworth* (Eng. Men of Letters).

FIELDING (*Henry*), b. 1707, d. 1754.

Henry FIELDING, eldest son of General Fielding, a soldier who served with distinction under Marlborough, by Sarah, daughter of Sir Henry Gould, one of the judges of the Queen's Bench, was born at Sharpham Park, in Somersetshire, in 1707. He was of noble race, being great-grandson of George, Earl of Desmond, second son of William, Earl of Denbigh, a soldier of Charles I. The family claimed, though without foundation, to be descended from the Hapsburghs.

Henry was educated by a neighbouring clergyman, and then at Eton, where he was contemporary of the elder Pitt and Fox. He passed a short time at the University of Leyden, but returned to London about the age of 20, and entered as a barrister at the Temple. There he plunged into dissipation, and supported himself by writing plays and literary hack-work. He said he had no choice between becoming a hackney writer or a hackney coachman. For ten years he wrote plays under the pressure of poverty and in the pursuit of pleasure. They have touches of wit; but, except in such farces as *Tom Thumb*, hardly a trace of his maturer genius.

About 1735 Fielding married Charlotte Cradock, of Salisbury, a lady with a small fortune, whom he is thought to have described both as *Sophia* and as *Amelia*. He loved her passionately; and at her death, in 1743, his friends despaired of his retaining his reason. His first novel, *Joseph Andrews* (1742), begun as a parody on Richardson's *Pamela*, soon developed Fielding's genius for the modern romance. It contains some of his finest characters, especially that of *Parson Adams*. The author himself calls it "a comic epic-poem in prose."

His immortal story of *Tom Jones* appeared in 1749, when the author was of the age of 42. In the year preceding Fielding had been appointed magistrate at Bow Street. He was chosen chairman of Quarter Sessions, and devoted himself to his public duties with characteristic energy and acuteness. In 1751 appeared *Amelia*.

He was now broken down by disease, and the last years of his life were a gallant struggle against suffering, passed in the use of his inexhaustible pen, and in zealous work in his office of magistrate. In July 1754 he sailed to Lisbon with his second wife; and there he died, October, aged 47. He lies in the English cemetery beneath a tomb still carefully preserved. As Thackeray tells us, Fielding was himself the hero of his books: "His figure was tall and stalwart; his face handsome, manly, and noble-looking; to the very last days of his life he retained a grandeur of air, and, although worn down by disease, his aspect and presence imposed respect on the people round him."

Manly, just, tender, and true-hearted, Henry Fielding had much in him of the heroic; with no faults except an extravagant generosity, and a fatal rage for pleasure in every form. Even the coarseness which occasionally defiles his pages is not, as Coleridge says, really corrupting. "There is a cheerful, sunshiny, breezy spirit in them, strongly contrasted with the close, hot, day-dreamy manner of Richardson." Critics, poets, and thinkers have exhausted the language of praise in their estimate of *Tom Jones*. "The prose Homer of human nature," said Byron. "The father of the English novel," said Walter Scott. "As a picture of manners," says Thackeray, "the novel of *Tom Jones* is indeed exquisite; as a work of construction quite a wonder; the by-play of wisdom, the power of observation; the multiplied felicitous turns and thought; the varied character of the great comic epic, keep the reader in a perpetual admiration and curiosity." As a French critic has well said, it is the outcome of an entire lifetime, where the author has condensed years of passion and of thought, and his final review of all that he has seen and felt. Scott declares that these novels are the most exclusively English of all the works of imagination to which English genius has given origin. Fielding learnt much from *Gil Blas*, which preceded *Tom Jones* by fourteen years; but he is no more a copyist of French romance than was Le Sage of Spanish. The splendid encomium of Gibbon has become a household word in English literature:—"Our immortal Fielding was of the younger branch of the Earls of Denbigh, who drew their origin from the Counts of Hapsburgh. . . . . The successors of Charles v. may disdain their brethren in England, but the romance of *Tom Jones*, that exquisite picture of human manners, will outlive the palace of the Escorial and the imperial eagle of Austria."

One of the most striking and characteristic features of Fielding is the genuine enthusiasm with which he paints a virtuous nature, and the enthusiasm which he kindles in its virtues. And this is peculiarly true of the beautiful character with which he has invested the women of his fancy. His *Sophia Western* has been justly called "a miracle of loveliest womanhood," and it is still unsurpassed in English prose fiction. In this rare and supreme gift of idealising woman Fielding is indeed superior to Scott, Byron, and Goethe,

and is only surpassed by such masters as Dante, Shakespeare, and Calderon.

Comte has pointed out (*Pos. Pol.* iii. 508) how, during the last phase of the revolutionary movement of the West, Poetry took the form of Romance, and developed "the epic idealisation of private life, both personal and domestic." And he has placed *Tom Jones* in the Positivist Library with *Robinson Crusoe*, *The Vicar of Wakefield*, and the masterpieces of Scott. Of this form of the "prose-epic" Fielding was the true English father, as he was, undoubtedly, its first conscious creator. [F. H.]

Works and Biography, by L. Stephen, 10 vols., 1882. A. Dobson: *Fielding* (Eng. Men of Letters). W. L. Cross: *The Hist. of Henry Fielding*. W. M. Thackeray: *English Humourists*. Pen and ink sketch by Hogarth, often engr.

RICHARDSON (*Samuel*), b. 1689, d. 1761.

Samuel RICHARDSON, the son of a tradesman in London, was born in Derbyshire in 1689. He was intended for orders; but, owing to his father's losses, he was apprenticed to a printer in London at the age of 17. As a boy, he was famous for his powers as a story-teller; and at the age of 13 he became the confident and amanuensis of several young women in their love affairs. His diligence, probity, and acumen soon made him a successful man of business, when he established himself in Salisbury Court, Fleet Street. Speaker Onslow procured for him the printing of the Commons Journals. He became Master of the Stationers' Company and law-printer to the King. He amassed a fair fortune, retired to Parson's Green, to a house of late occupied by the painter, E. Burne-Jones. There he read his stories to circles of adoring women. And there he died in 1761, aged 72. He is buried in the church of St. Bride's, Fleet Street.

His first work, *Pamela*, was not published until 1740, when he was 51. It had an astonishing success, and Pope declared that it would do more good than volumes of sermons. Eight years later he wrote *Clarissa Harlowe*, the most popular of all English romances on the Continent until the time of Scott. *Sir Charles Grandison* appeared in 1753, when the author was 64. The demure, pious, affectionate, and somewhat narrow London printer has produced in *Clarissa* a masterpiece, which, in intensity of pathos and minute analysis of the human heart, has never been surpassed. We forgive the unmanly absurdities of *Pamela* and the tedious artificiality of *Sir Charles Grandison*, for the sake of the subtlety and tragic beauty of *Clarissa*. Neither as man nor as genius was the inspired printer the equal of the splendid creator of *Tom Jones*; but he deserves to stand beside him amongst the group round Molière, as one of the real masters of the human heart, one of the most pathetic teachers of pity in the whole range of modern romance. [F. H.]

A. Dobson: *Richardson* (Eng. Men of Letters). Sir W. A. Raleigh: *The English Novel*, ch. 6. Portrait by Highmore, N.P.G.

MOLIÈRE (*Jean Baptiste Poquelin*), **b. 1622, d. 1673.**

The date, the spot, of Molière's birth and many circumstances of his life rest upon imperfect authority, and almost every incident has been debated as doubtful. In this short summary the more probable accounts will be followed without discussion of details or reasons. He was born in January 1622, more probably than in 1620, in or near the *Rue St. Honoré* at Paris, in the quarter of the *Halles*, being the eldest of ten children—of one Jean Poquelin, a well-to-do upholsterer, who ultimately became an official in the royal household. The young Poquelin had a regular education, entering at 15 the famous Jesuit College of *Clermont* in Paris, where his fellow-pupils were the Prince of Conti and other well-known men. He studied philosophy under the famous Gassendi, who is in some sense a precursor of Locke. He admired much and commenced a translation of Lucretius, a fragment of which is found in his *Misanthrope*. He then studied law, and, it is said, became an advocate.

We are told that he had been early imbued by his grandfather with a passion for the stage: and it is certain that about 1645 (at the age of 23), he joined a company of actors of good repute known as the *Illustre Théâtre*. And at this time he took the name of MOLIÈRE, by which he is henceforth known, a name already borne by more than one actor and writer. To the acting company he devoted his whole energy and what fortune he had; and, not succeeding in Paris, they together set forth in the provinces, where for twelve years (1646-1658), the life of Molière was passed in wanderings of which little record exists. In 1658, he returned finally to Paris with a great provincial reputation, was received with favour by the King, and here for the remaining fifteen years of his life he laboured incessantly as player and dramatist. During the first fourteen years of his dramatic career he composed a great many pieces, of which nothing important remains except *l'Etourdi* (1653), and *Le Dépit Amoureux* (1654), pieces not at all unworthy of his name. His first great success, and that which revealed his real genius to the public of Paris, was *Les Précieuses Ridicules* (1656, *ætat.* 37). Molière himself played *Mascarille*, the stock name of the impudent valet, who appears so often, a name often applied to Molière himself.

In this original and delightful piece, Molière struck out his own peculiar forte, the satiric comedy of modern manners. He deliberately proceeds to analyse, paint, and judge a prevalent type of conduct, bringing it before the judgment-seat of good sense and right feeling. This noble task he followed out, with wonderful instinct and unwearied consistency, for fourteen years, in a series of systematic pictures of life, until he died almost in the act of representing *Le Malade Imaginaire*, in 1673. He had now found his true

vocation, and, according to a doubtful story, he said that henceforth he had no need to go to Plautus, Terence, and Menander for types of character: he had only to study the world before him. He fell back not unfrequently, to please the groundlings, on the farces in the Plautan and Italian manner; he wrote ballets and extravaganzas for the Court; and he failed in "heroic comedy," a Spanish romantic drama, *Don Garcie*. But these were mere interludes to maintain the popularity of his company, in the midst of more serious pieces.

All his great pieces in verse, from *l'Ecole des Femmes*, 1662, to *Les Femmes Savantes*, 1672, appeared in the ten years of his later life (*ætat.* 40-50). The latter play is usually regarded by his countrymen as the highest perfection of polished art that he ever attained. The dates of the other principal pieces are *Don Juan* (1665), *Misanthrope* (1666), *Tartuffe* (1667), *L'Avare* (1668), *Bourgeois Gentilhomme* (1670), *Fourberies de Scapin* (1671), *Le Malade Imaginaire* (1673). Altogether, during this period of his Paris life (about fourteen years), we have nearly thirty plays still extant, produced in the midst of incessant labour as actor, manager, and court functionary, with intervals of acute domestic troubles, and furious professional intrigues.

Such prodigious work, amounting to the production of about 4000 lines in each year, wore out the body, but did not subdue the spirit of the poet. He had long been troubled with a hacking cough which greatly afflicted him on the stage: in 1667, and 1666, he had dangerous attacks of illness: he lived with great care on a fixed *régime*. Boileau urged him on the ground of health to quit the stage, and devote himself to his pen alone. Molière declared that "the point of honour" retained him to the theatre. "What point of honour," cried Boileau, "can require you to disguise yourself as *Sganerelle*, and be beaten as *Scapin*?"

Molière's point of honour was the welfare of his company, to whom he knew himself so necessary. His enemies called him a "pretended invalid." He rejoined with his last piece, *Le Malade Imaginaire*, his final word to the pedants and to the world. At the fourth representation his cough was incessant, and his chest acutely painful. His fellow-actors implored him to withdraw. "How can I leave these poor people without their day's salary?" said the dying manager. In the Latin interlude at the word *Juro*, Molière was seized with a convulsive spitting of blood, which he disguised in a forced laugh. The play was stopped: he was carried home, and died that night in his house in the Rue Richelieu, February 1673, having lately completed his 51st year.

As he had died excommunicated and without the aid of a priest, the Archbishop of Paris refused him Christian burial. But at the prayer of the widow, who addressed herself to the King, he was carried to the cemetery of St. Joseph, and ultimately to Père La Chaise—where his bones are supposed to rest. Personally, we are told that Molière was of fine and graceful figure; with a serious air,

large mouth, thick lips, and heavy nose, large and marked eyebrows, dark complexion—and with wonderful expression as a comic actor. In society he spoke little ; he was punctual in all his habits ; an indefatigable worker and a most rapid composer ; genial, affectionate, placable, and generous. In all his public relations his conduct was honourable and manly. His loyalty and devotion to his professional comrades for a period of nearly thirty years were interrupted only by his death. His friendship with Corneille, Racine, and Boileau was, on his part at least, sincere and generous.

Louis XIV. remained his firm patron throughout, made his dramatic company "The King's Troup," gave them a pension and a theatre, and ultimately supported Molière, in his long struggle against the priest party, to obtain the representation of *Tartuffe*. Louis made Molière his valet-de-chambre and admitted him to his privacy : the anecdote that the King, to give a lesson to his courtiers, once made the actor sit down and partake of his bed-side supper, is not impossible ; and it is certain that he stood godfather to Molière's first child. The dauntless and systematic warfare which the dramatist waged against all forms of imposture, affectation, and presumption involved him in a series of hostilities with the coteries and objects of his satire, and in these he bore himself with unshaken courage, good-humour, and fairness. The intrigues of his rivals and the jealousies of cliques, both literary and aristocratic, made him the centre of a lifelong struggle. Again and again the poet returns to the charge, with Aristophanic licence and Rabelaisian directness, overwhelming the blue-stockings, the pedants, the fops, the bullies, the hypocrites, the quacks, the fribbles, the boors, the snobs, and the humbugs of the world of Paris and Versailles.

But the kindler of inextinguishable mirth was not himself a happy man ; and he who gave such profound lessons to others did not order his own life either wisely or decently. For sixteen years he was the avowed lover of Madeleine Béjart, the principal actress of his troup, a woman older than himself, of jealous and violent temper. He gave her too much ground for jealousy by intrigues with younger rivals, carried on in the home they occupied in common. In 1662 appeared a somewhat mysterious girl, one Armande Béjart, called, the sister, but possibly the daughter of Madeleine. Molière passionately loved the girl and married her, he being 40, and she just 17 ; Madeleine and her rivals continuing in the same company, and living under the same roof. The horrible suggestion that Armande was his own child by Madeleine was formally made in a series of shameless libels, and was even laid before the King. It was never adequately disproved ; but there is little reason to doubt that Molière did not know Madeleine until after the conception of Armande. The truth of their relationship will perhaps never be revealed. But, as Molière had lived in daily intimacy with the whole Béjart family during the entire life of Armande, he could not be ignorant of the true facts, whatever these might be.

Certain it is, that Molière passionately loved his young wife : that she, a charming actress, but a gay and frivolous creature, caused him torments of jealousy, which she repaid with irritation, contempt, and estrangement. The miserable husband lectured, implored, and railed in vain ; parted from his giddy wife in wrath ; fell again under the consolations of a former mistress, and at last returned to his wife, by whom he had two children. One daughter only survived him, and came to a bad end, dying childless. The eleven years of Molière's married life were the years of his supreme genius, of his grandest triumphs, and of his bitterest agonies and remorse. And it is a cruel reflection on the weakness of human nature that a spirit, so brave, so just, so wise, so generous, dwelling in a genius so profound, so tender, so manly, and so truthful, should have been bowed down in private, amidst his public triumphs, by the weakness of irregular passion, the sacrifice of domestic honour, and even the loss of personal dignity.

In pure comedy, Molière has no superior, or none but Aristophanes. He is marked out, above all the masters of this art, by the wonderfully systematic and profound study that he devoted to every type of folly, affectation, hypocrisy, quackery, foppery, and grossness which beset his age. In the sphere of contemporary manners, he is the zealous *censor morum*, almost as much the moralist as he is the artist. No poet—not Wordsworth, nor even Dante himself—ever worked more consciously with a purpose, and as a moral teacher and judge of his contemporaries. But the astonishing quality of Molière's genius is, that the purpose never obtrudes itself, never overmasters the poet, or ends in tedium and commonplace. On the contrary, some of Molière's happiest lessons in simplicity and manliness are wrought out in wild burlesques and riotous outbursts of quite familiar farce. In this he has been approached amongst the moderns only by Fielding. But in the exquisitely finished verses of *Les Femmes Savantes*, the same spirit is at work in all the conventional manners of polished society and modern social culture.

In his masterpiece *Tartuffe*, he has boldly grappled with one of the deepest problems of modern civilisation, and the world-wide popularity of this great piece is a proof of his power in the most difficult sphere of social ethics. The *Misanthrope*, if inferior as a play, is more subtle and profound as a study. And it has earned the criticism that it is rather tragic than comic in conception. There can be little doubt that Molière has painted in *Alceste* not a little of his own noble yearnings and profound weariness, as of a free spirit born out of time into a most artificial and degenerate society. It is objected, and with some truth, that Molière is hardly to be classed as a poet, inasmuch as his characters are too typically intense to be individuals, because his portraiture is so sharply cut, and his conceptions entirely without mystery and beauty. It is true that not even in *Psyche*, or any of the lyric interludes, has he ever shown a trace of the fantastic imagery or exquisite music of Shakespeare,

nor again of the phantasmagoric fairyland of Aristophanes in his dithyrambic hour. Nor does the dialogue of Molière sparkle with wit and fancy as do those of some English and some Greek comedies. Molière is always the Frenchman, and the Frenchman of the age of Louis XIV. He is always so measured in his forms as to be something of the comic Racine ; his wildest humour is courtly, as of some Rabelais of Versailles. His buffoonery melts into graceful comedy ; his polished dialogue is easily extended into practical fun. It is this peculiar gift which places him alone. It is idle to discuss if he be a *poet*. He has created scores of immortal types of human character. They are not oddities and individualities, but classes of civilised men and women. And if he has never broken into Pindaric heights of fancy, or given us scenes of pathos, beauty, and mystery, he is one of the profoundest masters of human nature, and one of the most original minds in creative art. [F. H.]

C. A. Sainte-Beuve : *Nouveaux Lundis*, v. ; *Portraits Littéraires*, ii. G. Saintsbury : *French Literature*. F. Brunetière : *Essays in French Literature* (Eng. trans.). Andrew Lang : LIFE in *Encyclopædia Britannica*. Works translated by Van Laun, 1875. Molière's Plays are included in the Positivist Library. Portrait by Mignard ; by Coypel, L.

PERGOLESE (*Giovanni Battista*), b. 1710, d. 1736.

This precocious genius is said to have been born either at Pergola, from whence he derived his name, or, according to others, at Jesi, in the Roman States, in 1710, of obscure origin—the date and place of his birth and family name being all disputed. He was educated at the Conservatoire of Naples, where as a boy he showed extraordinary aptitude ; and so early as 1731 produced his first opera. In the same year (*ætat.* 21) he produced his operetta, *La Serva Padrona*, which served for more than a century as the type of comic opera throughout Europe, and introduced the practice of basing opera on real and modern as well as heroic subjects. He produced a *Stabat Mater* which is still a favourite. It was his last work. Worn out by disappointment, disease, and labour, he died of consumption in 1736, at the age of 26.

He was hardly dead when he became the object of much posthumous enthusiasm ; and throughout the 18th century his reputation seemed to grow. He is still remembered for his *Serva Padrona*, which was represented in London at two different theatres within a few years of the close of the 19th century—an almost unique example of a slight opera retaining its place for a century and a half. It is quite simple, being limited to two voices and a stringed orchestra. But it is a piece of delightful grace and freshness. "The fire of genius breathes in every bar, and the whole work has the character of a continuous inspiration." Its historical importance is great ; for it had the leading part in the foundation of the modern opera. His *Stabat Mater* and some other sacred pieces of exquisite

purity and tenderness are still heard. His early death, at an age younger than that of any other man in the Calendar—younger, perhaps, than that of any other artist of name—leaves his career, it has been said, little more than a suggestion. The place given him in the Calendar is, doubtless, due to the effect of his *Serva Padrona* in the history of the opera, and to the singular pathos and sweetness of his sacred compositions. [F. H.]

For the thirteen Musicians in this Week consult :—Sir G. Grove : *Dictionary of Music*, 4 vols. 1879-1886. Sir George Macfarren : *Musical History*, 1885. Articles in *Encycl. Brit.* by Sir G. Macfarren, Franz Hueffer, W. S. Rockstro, and others. R. A. Streatfield : *The Opera*. Pergolese is buried in Pozzuoli Cathedral.

PALESTRINA (*Giovanni Pierluigi da*), **b. 1528 (?), d. 1594.**

The first of the great Italian musicians was born of humble parents at Palestrina, in the Campagna of Rome, of uncertain date, about 1524-1529, and in the absence of any recognised family name, Pierluigi, as he was familiarly called, bore the name of his place of origin. At a very early age—probably about 1540—he studied music at Rome, under Goudimel, a Fleming. In 1551 PALESTRINA was appointed chapel-master at the Vatican, and three years later published a volume of masses, and he continued to hold offices in various churches at Rome.

In 1563 Pius IV., being resolved to reform the church music of his time, which had degenerated into vulgar triviality, issued a commission to eight cardinals to carry out the reformation. They directed Palestrina to write a typical mass, to be the future standard in the sacred office. Full of the importance of the occasion, Palestrina composed not one, but three masses. All three were received with admiration ; but the third was judged to be the perfect embodiment of sacred music, and was adopted with unbounded enthusiasm. The Pope declared it to be such melody as the author of the Apocalypse had heard from the sacred choir. He created Palestrina composer to the Pontifical Choir—an office which he held under seven pontiffs and until his own death. The mass was named after Pope Marcellus ; and for two centuries it continued to be the type of sacred music throughout Italy. For thirty years Palestrina continued to compose. But in his ninety masses and other pieces he never surpassed his masterpiece, the "Mass of Pope Marcellus." He continued with unabated energy to compose to the last and died in the arms of his friend, St. Philip Neri, February 1594.

The "Mass of Pope Marcellus" is one of the most definite landmarks in the history of music. It created the Italian school of the 16th, 17th, and 18th centuries, and is still regarded as one of the most sublime forms of church music that has ever been produced. It combined for the first time scientific form with profound feeling and reverential tone. If Palestrina be placed in a secondary class

in the Calendar, it is probably due to this, that Comte regarded the opera as a form of art capable of greater expansion than the mass, and Palestrina wrote before opera had begun to exist. [F. H.]

E. H. Pember: *Dictionary of Music*, Art. PALESTRINA. W. G. Rockstro: *Dictionary of Music*, Art. SCHOOLS. See also under PERGOLESE. Palestrina is buried in St. Peter's at Rome. Portrait in his *First Book of Masses*, 1572.

SACCHINI (*Antonio Maria Gaspare*), b. 1734, d. 1786.

This graceful composer was born near Naples, of poor parents, in 1734. He was educated in the Conservatoire there, and for twenty years he visited many towns in Italy, Germany, and England as musical composer, director of theatres, or of musical academies. About 1782 he settled in Paris, where his European reputation had prepared for him an enthusiastic reception. Joseph II. recommended him to the Queen, Marie Antoinette, who showed him much favour. The incessant jealousies, intrigues, and hostility of his rivals pursued him in France, as in Italy and England. Disappointment, anxiety, and his own intemperance brought him to an early grave, and he died at Paris, 1786, at the age of 52.

SACCHINI, though irregular and indolent in habits, left between forty and fifty operas and a large body of sacred pieces, none of which are now in vogue, though for fifty years his *Œdipus* held the Parisian stage. It is not easy to see on what grounds Sacchini holds a place in the Calendar in line with Beethoven and Gluck. Modern taste has almost forgotten him; and our present canons of judgment would assign him but a secondary rank. In the history of the art he is not of great importance, as he added nothing to the work of Gluck, and has done nothing in which he has not been immeasurably surpassed by Mozart. Dr. Burney calls him "graceful, elegant, and judicious;" he was a consummate master of the operatic art, and understood in perfection the conditions of writing for a particular voice. His work is full of expression, and of true and pure dramatic feeling. He is "graceful, elegant, judicious:" had he power and originality of a higher order he might have left us something more than an extinct reputation. [F. H.]

See under PERGOLESE.

GRÉTRY (*André Ernest Modeste*), b. 1741, d. 1813.

This ingenious musician was born at Liége, of poor parents, in 1741, and was educated at Paris and Rome; but it is said that he never was master of musical science, and his technical composition is rudimentary and thin. At length, by the advice of Voltaire, who befriended him, he went to Paris, 1768; and there for forty years he worked, holding front rank, as a composer of comic opera and

as musical authority. He established his reputation in 1769 in *Le tableau parlant*, which was genuine comedy, and he was one of the chief founders of the " comic opera " of France, the essence of which is real comedy, musically interpreted. GRÉTRY has been called, somewhat extravagantly, the " Molière of Music ; " but the phrase marks his characteristic as a strict follower of musical *expression* of all the lighter feelings. His *Richard Cœur de Lion*, 1784, is usually regarded as his masterpiece. It contains the air, " O Richard, O mon roi, l'univers t'abandonne," which obtained historic importance when sung in the famous banquet of the Guards at Versailles on the eve of the Revolution. Of the fifty operas which Grétry wrote between 1768 and 1803, none survive ; and he published no orchestral pieces. His place in the history of music is marked by his success in founding the " comic opera " of France, his strong sense of true dramatic expression, and perhaps, above all, by his *Mémoires sur la Musique*, 1789-1797, in which he expounds his theory of dramatic music. The book is in the Positivist Library. [F. H.]

See under PERGOLESE. Grétry is buried in Père La Chaise, Paris. Portrait by Madame Vigée-Lebrun.

GLUCK (*Christoph Willibald*), b. 1714, d. 1787.

The great reformer of opera in France was a German, born 1714, in Bavaria, of parents in the household of Prince Lobkowitz. He was educated in Bohemia and Vienna ; and at the age of 22 he was taken to Italy, where he wrote operas during nine years and obtained a European reputation. In 1745, at the age of 31, he was invited to London as composer to the opera. Here Handel pronounced his music detestable and his ignorance complete. In truth his operas were a failure. GLUCK then set himself to reflect on the causes of his ill-success ; and after hearing Rameau in Paris, he determined to recast his whole style of dramatic composition. For many years he continued to study, producing works of little importance, as a means of living.

His *Orpheus and Eurydice*, 1762, exhibited a new conception of operatic music, and he continued to produce at Vienna a series of pieces on the reformed style. In 1774, he arrived in Paris, where he received the favour of Marie Antoinette, whom he had taught before her marriage. In Paris he continued for five years, producing a series of operas which entirely reformed the musical drama and laid the foundation of the French national opera. His long contest with Piccinni, his rival, who maintained the old Italian method, was one of the most violent, obstinate, and memorable in the history of music. The complete triumph of Gluck is one of the epochs in the development of dramatic music, and was an event of European importance in art, the full effect of which is not yet completely developed.

The essence of his reform consisted in this, that he discarded the old system whereby airs were accumulated without reference to the dramatic action, so that, as was said, the play became a mere pretext for a concert. The aim of Gluck was to make the music the tonic embodiment of the drama, and to require it to conform consistently to true dramatic expression. Gluck did for the tragic and higher drama of France that which Grétry did and taught for the comic drama. He made the opera a true musical drama, whereas the prevalent Italian school looked on opera as a collection of airs strung together on a set of dialogues and songs. Gluck was thus essentially a German, working on what have since been recognised as German types—types that received in the 19th century so vast a development by the genius of Wagner. But as he found little success either in Germany, England, or Italy, and as he really founded the national opera of France, where all his triumphs were achieved, he is usually classed with the French school of the 18th century. From the new mode of opera, the style of Rossini, Donizetti, and Bellini was a decided reaction, for they all returned more or less to the old Italian plan of writing airs for favourite singers with little attention to the dramatic situation.

Gluck takes up a middle place between the school which treats the *libretto* (or drama) as a subordinate incident, the mere canvas on which to paint a series of beautiful melodies executed by voices and orchestra, and the modern school which treats the play as the substantial representation and the music as its illustration or translation into harmony. But in the operas of Gluck the musical aim is ever dominant. He is always a lover of ideal beauty ; he never admits what is harsh or discordant for the sake of dramatic expression ; and in his *Orpheus* he has left the world one of the most lovely and pathetic airs ever conceived by man. His *Orpheus*, which is one continuous stream of pure and superb delight, at least seems destined to a permanent popularity ; and, unlike the school of Italian opera composers of the 19th century, his reputation is rather increasing than diminishing. Gluck continued to compose in Paris until 1779, when advancing years and a stroke of apoplexy caused him to withdraw from active life. With fame and fortune secure, he retired to Vienna and died there at the age of 73. [F. H.]

Dictionary of Music, Articles, GLUCK—OPERA—SCHOOLS OF COMPOSITION. See also under PERGOLESE. Gluck is buried in the Matzleindorf Cemetery, Vienna. Portrait by Duplessis ; bust by Houdon, L.

LULLY (*Jean Baptiste*), b. 1633, d. 1687.

LULLY, the founder of the national opera in France, was born in Florence, 1633 ; his Italian name being Giovanni Battista Lulli. As a boy he was taken to Paris and engaged in the service, first of "La Grande Mademoiselle," and then of the King, Louis XIV.

Ambitious, unscrupulous, intriguing, and avaricious, Lully contrived to retain the supreme favour of the King during the great epoch, and died of an accident at the age of 54 (1687), wealthy, honoured, and uniformly successful. He is one of the luminaries of the Court of Versailles under the great King; he composed the airs for several of Molière's comedies, and in the *Psyche* he wrote music to the words of Molière and Corneille. His place in the history of music is as one of the principal creators of opera in its early period. [F. H.]

See also under PERGOLESE. Lully is buried at Paris in Notre Dame des Victoires. Portrait in group by Rigaud, N.G.

BEETHOVEN (*Ludwig van*), b. 1770, d. 1827.

The mighty founder of the modern school of orchestral music came of a Belgian family settled for two generations in Germany. His grandfather and father were both musicians at Cologne. Ludwig van BEETHOVEN was born at Bonn, December 1770. He passed a youth of poverty and hardship; showed early signs of musical genius; and at the age of 15 received an appointment as court organist-assistant. A brother of the Emperor Joseph sent the youth to Vienna, where, at the age of 17, he had a few lessons from Mozart. Returning, he was at the age of 22 taken under the protection of Count Waldstein and again sent to Vienna. There he lived and worked thirty-five years, and there he died in 1827, aged 57. What is called his *Opus* 1 appeared in Vienna, 1795 (*ætat.* 25). A few years afterwards his deafness began, the result of an obscure disease which embittered the composer's life and cut him off from mankind and the enjoyment of his own art. The period of his chief masterpieces is 1800-1814, during which were produced *Fidelio*, his only opera, and the principal symphonies, except the great *Choral Symphony* which is later. Franz Hueffer writes: "Beethoven's compositions, 138 in number, comprise all forms of vocal and instrumental music, from the sonata to the symphony, from the simple song to the opera and oratorio. In each of these forms he displays the depth of his feeling, the power of his genius; in some of them he reached a greatness never approached by his predecessors or followers."

This great musician was the first to develop an element in instrumental music which had been but foreshadowed by his predecessors — that which may be called the personal or subjective. Phrases of incongruous character, sudden and unaccountable transition of expression, he knew how to weld into a symmetrical whole that, while it mirrors the workings of a strong and wayward fancy, always bears the stamp of mastership. Numerous as are Beethoven's works, the phases of these tone-pictures are as varied, for no two resemble each other. Among the host who have followed his introspective method,

there are some illustrious names, but for creative power and grandeur that of Beethoven remains unique and unapproached.

His childhood and youth were a continued scene of toil ; he began music in his fourth year under his father, a musician of irregular habits, and began to compose and play in public when 11 years old. About this period he was trusted to play the organ as deputy, and to accompany the opera rehearsals ; meanwhile he was studying, besides clavier, viola, and organ, Latin, French, and Italian. In the last of three trios, his published *Opus* 1, his individuality is already clearly perceptible ; and the growth of his mind and mastery of resources may be traced almost from work to work, especially in his symphonies, in his expansion of musical form, his instrumentation and his peculiar power of conveying those surgings of feeling and consciousness that are the undercurrents of human life, and which the other arts can only delineate when they have passed into action.

We are told that he never cared for childish games or companions, yet in later years he showed a peculiar sense of drollery, and his ardent and lifelong friendships are a conspicuous feature in his character. As an executant we are told that he was a marvellous extemporist, a faculty in singular contrast with the slow and gradual growth of his musical thought. That his mind remained unbalanced was probably owing to his irregular and partial training ; generous and impulsive to the verge of aberration, he was also suspicious and resentful ; capable of a complete surrender of self for those he loved, he was ready to renounce his friend for any trifling cause. The torment of growing deafness darkened Beethoven's life for many years before his sense of hearing was extinguished, and from this time a great change came over his musical thought. A mysticism, as though he would express what cannot be uttered, acuteness of sound that distresses the hearer, diffuseness, jarring, harshness in harmony and part-writing often take the place, in his tormented spirit, of the beauty and symmetry of former days. But if his latest works bear traces of his mental isolation and the suffering it entailed, they also are full of those noble features that have made the name of Beethoven synonymous with what is most grand and beautiful in musical art. [N. M.]

Life of Beethoven, by Alexander Thayer, and by Schindler, 1841 ; and see Article, by Sir G. Grove, in *Dict. of Music*. Romain Rolland : *Beethoven*. His remains now lie in the Central Cemetery at Vienna. Engr. from life by Hoefel.

HANDEL (*George Frederick Handel*), b. 1685, d. 1759.

The great musician who made England his adopted country and passed there the greater part of his long life, was born at Halle, in Lower Saxony, in 1685, his family name being HANDEL. His musical genius asserted itself at the age of seven, and his father, a surgeon, was compelled to give him a regular musical education. As a boy

he was regarded as a prodigy ; his first opera was produced before he was 20 ; and it contains the beautiful air afterwards known as "Lascia ch'io pianga." At the age of 21 he went to Italy, where he passed three years, and on his return he was made Chapelmaster to the Elector of Hanover (George I.). He came to England, 1710, being then twenty-five, and from that time he made this country his home.

Between 1720 and 1738 he was occupied mainly with the opera, of which he undertook the direction, and for which he composed between thirty and forty pieces. He embarked his fortune and consumed his energies in a series of ventures which caused him incessant anxiety, fatigue, disappointment, and embarrassment. The miserable personal ambition and vanity of his rivals beset him with continual opposition, which his proud, irascible, and independent spirit was not well fitted to soften. The aristocracy, whose favour he was too proud to solicit, supported his rival, Buononcini, and for some time English society was divided into violent partisans supporting the two composers. Handel in the end triumphed, and carried with him the public applause ; but his opera house was a commercial failure ; he became bankrupt in 1737 ; and his health failing, he soon after renounced his connection with the stage.

Happily he found his true vocation in Oratorio, to which he now devoted himself at the age of 55, saying that "sacred music was best fitted to a man descending in the vale of years." In 1740 he produced *Saul* and *Israel in Egypt*, in 1742 *Messiah*, then twelve other oratorios, ending with *Jephthah*, 1752. Shortly afterwards he became blind, though he still continued to compose and even to perform in public. But disease and exhaustion overtook him, as his fame became assured : he died in his house in Brook Street (No. 25, still standing), and was buried in Westminster Abbey, where a monument by Roubillac is placed over his grave in Poets' Corner.

Handel was a man of strong, simple, independent character : generous, sincere, indomitable, and vehement. He was never married, and led a reserved, plain, and assiduous life. He produced some twenty oratorios, about forty operas, and hundreds of cantatas, psalms, songs, and instrumental pieces. His industry was prodigious, and his rapidity of intense concentration such, that many of his works are said to have been almost improvised. His reputation and popularity are far greater in England than in France or even in Germany. One noble field of musical art he almost created by himself : certainly he stands in it supreme and without a rival. His massive choral effects were exactly suited to impress a people saturated with Biblical ideas, and accustomed to public demonstrations of national and patriotic enthusiasm. Handel is thus in a singular degree the musical expression of the England of Marlborough, Chatham, Defoe, and Wesley. No artist perhaps in any line has more deeply touched the national fibre ; and none has ever more completely vivified patriotic aspiration and religious fervour

in masses of people. On these grounds his influence and glory are in a singular degree national, which may account for the secondary place he occupies in the Calendar.

Handel was unquestionably one of the greatest creative geniuses in the history of art: his *Messiah*, of which he selected the words from the Bible, proudly declining the officious assistance of a courtly bishop, is itself, apart from the music, a drama grandly conceived, and worked out with the feeling of a poet. The instrumental portions of his oratorios, to modern ears somewhat thin and rudimentary, have been filled in and completed by Mozart and other musicians; and the other instrumental pieces of Handel, though some of them remain from their intrinsic beauty, are slight and conventional in form. But Handel was in no sense great only in majestic choral effects. Many of his solos, and a few of the songs from his operas, are still cherished as amongst the most exquisite and pathetic melodies which art has given us. With Bach, Gluck, and Mozart, Handel is certainly one of the great powers in the evolution of modern music in the three centuries which separate the birth of Palestrina from the death of Beethoven. [F. H.]

J. Marshall, in *Dictionary of Music*. Franz Hueffer, in *Encycl. Brit.* Sir G. Macfarren, in *Musical History*. Schoelcher: *Life* (Eng. trans. W. G. Rockstro, 1857). Portrait by Hudson, N.P.G.

ROSSINI (*Joachim Antonio*), b. 1792, d. 1868.

ROSSINI was born, 1792, at Pesaro, on the Adriatic, of humble parents. His father was town trumpeter and a local wag: his mother sang on the stage in the theatres of Romagna. The young Rossini had but slight education; sang in public as a lad; and studied music in the Conservatoire of Bologna. At the age of 16 he produced orchestral pieces in public, and at 18 he gave his first opera. From that time he composed a constant succession of operas which had great success in Italy; but it was not until 1822 that his reputation became European. In that year (he was now thirty) he married, went to Vienna, and brought out *Cinderella* and *Semiramis*. His *Barber of Seville*, composed in 1816, had not at first proved a success, but it soon became his most popular piece. He next visited London and Paris, in both of which cities he was received with great enthusiasm, and was overwhelmed with commissions. In 1824 he was established in Paris as musical director of the Italian Theatre. In Paris Rossini worked for five years, the acknowledged head of the musicians of the capital, and produced a succession of operas marked with his peculiar facility, humour, and vivacity. In 1829 he brought out *William Tell*, his masterpiece. In it he had deeply modified his style. The study of Beethoven had now led him to a larger and more serious conception of dramatic harmony; and he

plainly presents himself as the rival of Meyerbeer in the new taste for massive orchestral combinations.

From the date of *Tell* Rossini lived nearly forty years, in full activity of mind and possessed of wealth, influence, and reputation. But he produced nothing further for the stage, and nothing of much importance of any kind. His renunciation of his art at the age of 37 is one of the most singular incidents in the whole history of art; and can be paralleled only by the retirement of Racine at the age of 38, and that of Fra Bartolomeo della Porta, the Italian painter, at the age of 25. These were caused by religious scruples. For the obstinate withdrawal of Rossini there have been alleged as causes,—disappointment, jealousy, idleness, vanity, pride, self-respect, and lastly a noble conviction that he had fulfilled his best work, and could no longer produce anything of permanent value. His motives were doubtless of mixed kind, made up of self-indulgence and self-respect. There is reason to think that he recognised the thin and somewhat stagey character of his own earlier work, and had the good sense to feel that he was not destined to surpass *Tell* in powerful dramatic combinations. In any case he lived long after it in a luxurious, cultured, and artistic world; a wit, a "*bon vivant*," and a munificent friend of music and of musicians. He died at Paris, which had been his home for forty-four years, at the age of 76, in 1868.

The music of Rossini had been extravagantly admired in his own age; and is now as unjustly ridiculed in our own. With Mozart he stands almost alone as having written delightful music that is, in a true sense, witty or the expression of rollicking fun. In brilliancy and vivacity, both for voice and for instruments, he has hardly any equal. But his brilliancy has neither subtlety nor pathos; and not seldom degenerates into idle flourishes and sentimental languor. His wonderful *brio* and sparkling agility of movement have made him the favourite of singers, both men and women, who seek for a means of displaying their vocal resources. But to the adepts of the new school of dramatic expression, the musical *pirouettes* of the brilliant Italian are foolishness and debasement. A more sober and just estimate has been expressed of him by great masters of the art who themselves chose a different manner. And, much as Rossini may be wanting in power, in feeling, and in serious harmony, his vivacity, invention, and grace continue to delight the lovers of opera in all parts of the world. His name is one of the two or three of living persons who were included in the Calendar. [F. H.]

See under PERGOLESE. His remains are now in Santa Croce, Florence. Statuette by Dantan, C.

WEBER (*Carl Maria F. E. von*), b. 1786, d. 1826.

Carl Maria von WEBER belonged to a German family, which for several generations had been noble, Catholic, military, and musical.

He was born at Eutin in Holstein in 1786, and received his first musical education from his father, who had fought at Rossbach, 1756, and had subsequently become director of various theatres in many German towns. He led a desultory and wandering life as a youth ; but his musical genius introduced him to Haydn and other eminent composers. In 1813, at the age of 27, he settled at Prague, as director of the opera. In 1821 he produced his first great European success with *Der Freischütz* ; and from that day the young composer was recognised as a dramatic successor of Mozart and Beethoven. His next work, *Euryanthe* (1823), was less immediately popular, but has since been recognised as his masterpiece. He was now visibly suffering from the malady (phthisis) from which his mother had died in youth ; and his constant exertions in directing operas in all parts of Germany increased the strain on his health. He agreed to write an opera in English, to be produced by Charles Kemble in London. *Oberon* was the subject. In 1826 he journeyed to London, where the new opera was produced with great success. But two months later (4th June, 1826) he died, and was buried with much ceremony in London. In 1844 his remains were removed to Dresden.

Weber, who had not completed his 40th year at his death, left nine operas, of which three are still performed, and a mass of compositions for voice and instrument. His reputation, unlike that of the contemporary Italian masters, has not diminished with time and does not rest on operas directly written to meet the taste of the time and particular voices which sang them on the stage. Weber was a man of engaging character, much general culture, and many literary and artistic gifts ; and much might have been hoped from his astonishing originality and inventive genius, if poverty, a lingering disease, and early death had not cut short his activity in the maturity of his powers. [F. H.]

See under PERGOLESE.

BELLINI (*Vincenzo*), b. 1807 (?), d. 1835.

Vincenzo BELLINI, the son of an organist of Catania, in Sicily, was born 1807, or as some think in 1802, and taught first by his father and then in the Conservatoire of Naples, where he had as his fellow-students Donizetti and Mercadante. As a youth he attracted the attention of the manager of La Scala at Milan and of San Carlo at Naples. His first opera, *Bianca e Fernando*, was produced in 1826, when he was 19. In the following year he brought out *The Pirate* at Milan. His first great European success was *La Sonnambula*, produced in 1831, at the age of 24, the masterpiece which still keeps the operatic stage, the favourite of a succession of *prime donne*. About a year later came *Norma*. In 1834, Bellini went to Paris, where he enjoyed the friendship and support of Rossini ; and under his advice he produced *I Puritani*. Shortly after its production he

was attacked with dysentery, delirium supervened, and he died September 1835, at the age of 28. He was buried in Père La Chaise ; but his remains have recently been removed to his native place in Sicily.

Bellini produced little but operas, of which three are still continually heard in all the theatres of the old and new world. They are marked by singular sweetness of melody and purity of feeling ; but they are almost entirely independent of any resources of harmony ; have little dramatic power ; and rely wholly on pathetic airs, not on constructive skill or force in representing passion. Their author is one of the most precocious of musical geniuses, and during his lifetime enjoyed enthusiastic admiration. The delight with which his works were received over Europe was due in great measure to the fact that they were sung by some of the most wonderful singers in modern times, amongst whom were Rubini, Tamburini, Malibran, Pasta, Grisi, and Lablache. His place in the Calendar is far from being that to which he is usually assigned in the roll of modern musicians ; and it is doubtless due to the excessive value placed by Comte on pure and simple melody and the operatic drama as the expression of human emotion. [F. H.]

See under PERGOLESE.

DONIZETTI (*Gaetano*), b. 1798, d. 1848.

Gaetano DONIZETTI, six years junior to Rossini and nine years senior to Bellini, was born at Bergamo, in North Italy in 1798. He was educated at Bergamo and at Bologna, and produced his first opera at Venice in 1818, at the age of 20. His chief successes were produced between the years 1830 and 1835,—*Anna Bolena*, *l'Elisir d'Amore*, *Lucia di Lammermoor*, and *Lucrezia Borgia*. On subsequent visits to Paris he composed *La Fille du Régiment* (1840), and *Don Pasquale*, a delicious comic opera (1843). He composed in all upwards of sixty operas, of which hardly any but those named above are now heard on the stage. Worn out by incessant labours he fell into a condition of melancholy, and died of paralysis at Bergamo in 1848, at the age of 50.

Donizetti, like Bellini, was a follower of the school of Rossini ; and, if he had far less power than his master, avoided his besetting mannerisms. Like Bellini, his principal gift lay in pathetic melody, though he has somewhat more of dramatic power, of verve, and comic originality. Like Bellini and Rossini, he no longer commands the passionate enthusiasm which surrounded him in his lifetime, an enthusiasm which was largely due to the superb singers who presented his works, to display whose voices he exactly adapted his airs. Nor would the judgment of modern musicians place him as inferior to Bellini, unless it be in the single quality of pathos. [F. H.]

See under PERGOLESE.

MOZART (*Johann Wolfgang Amadeus*), **b. 1756, d. 1791.**

The most wonderful of all musical geniuses was born of a family of musicians at Salzburg, in 1756; and died before completing his 36th year, worn out with excitement and intense activity, having produced an enormous mass of works, amongst which are masterpieces in every department of music, vocal and instrumental, and having effected a revolution in the history of his art. The most intense of all musical geniuses was naturally the most precocious.

Johann Wolfgang Amadeus (*Latin* Theophilus, *Germ.* Gottlieb) MOZART was the son of Leopold Mozart, a violinist of repute, in the service of the Archbishop of Salzburg. He was reared to music almost from the cradle. At the age of three he began to play and even to compose; at five he took part in a public operatic performance; and at the age of six he was exhibited as an infant prodigy in the courts of Germany. The child grew up intensely susceptible, delicate, and precociously acute. From the age of seven to that of seventeen the young genius was engaged in a long series of journeys over Europe, in the course of which, with his father and sister, he played in public and at court in the cities of Germany, in Brussels, Paris, London (in which they stayed fifteen months), Holland, Switzerland, Austria, and Italy. In all of them the marvellous boy created the utmost enthusiasm, playing on three instruments, composing elaborate pieces, and improvising, besides exhibiting various feats of a somewhat dubious value. At the age of fifteen he travelled in Italy, where he produced many pieces, and was overwhelmed with applause and distinctions. These ten years of wandering in boyhood could not be but a terrible strain on a lad of intense susceptibility and ardent genius; but his musical education was by no means neglected. His father, an ambitious and able man, of great capacity and energy, omitted no opportunity to train the child, whom he recognised as the greatest artistic genius of his age. And perhaps to a spirit endowed with the rapid and unerring intuition of Mozart, such a life of movement and publicity served to fill the mind with everything that Europe could then produce in music.

At the age of 20 (1776), the young Wolfgang had assimilated and exhausted everything that music had then to teach; and he certainly had produced characteristic and lasting works in every department of the art. In his 20th year he returned to his native Salzburg, and worked with energy and success at a great variety of subjects. For five years more he occupied himself partly in foreign and German cities, both playing and composing, or in steady work in his own native town. In 1781, at the age of 25, he proceeded to Vienna, and there, with some journeys to other cities and countries, the rest of his short life was passed. In spite of enthusiastic admiration, warm friends, and royal patrons, with his own incessant productive-

ness, Mozart's life in the capital was one long struggle with poverty, jealousies, and disappointment.

In 1781, in spite of his father's remonstrances, he married Constance Weber, of the same family as that of the composer Carl Maria ; and, though she was a well-intentioned and affectionate girl, she was without the strength of nature or the economic habits needed to keep the thriftless genius from troubles and want. Their married life, indeed, was one of constant anxiety and confusion. The young composer gained a scanty and irregular livelihood by teaching with slight success, and performing with applause, but with constant interruption to his own original work. He was continually engaged in public concerts, operas, and at the palaces of the court and nobles ; but his profits were small and soon exhausted, and he could obtain no fixed appointment. In spite of all his efforts, and the aid of many warm friends, the greatest of musicians was allowed to live from hand to mouth on the proceeds of occasional lessons and chance concerts, as he himself wrote to a friend—" always hovering between hope and anxiety." After incessant rebuffs and amidst violent intrigues, he produced the *Nozze di Figaro* in 1786 : he was then thirty, and it marks the high-tide of his genius. It was received with delight ; but brought the composer little but applause. In the following year (1787) came his masterpiece, *Don Giovanni*. Both of these he conducted in person : the success of the latter was at first doubtful in Vienna ; but it brought him a yearly salary of £80. Journeys followed to Dresden, Berlin, Leipsic, and Frankfort ; at all of which he gave concerts which brought him nothing but fame.

In 1789 he returned to Vienna for the last time ; and was absorbed in lessons, public concerts, and composition, amidst the utmost anxiety from his wife's illness and his own precarious income. In 1791 he undertook his last opera, the *Zauberflöte*, or *Magic Flute*, and in the midst of his labours he received the order from an unknown patron to compose a *Requiem* in secret. The *Clemenza di Tito*, based on Metastasio's drama, was performed with poor success, and in a week afterwards the *Zauberflöte*, which was far from well received. Chagrin, overwork, and anxiety were now telling on his body and mind. Fainting fits succeeded, and he fell into despondency. He told his wife that he was writing the *Requiem* for himself. And his presentiment was true. It was never finished. On November 15, though visibly dying, he composed a cantata, and conducted it himself ; but he was forced to take to his bed, where he laboured at his *Requiem*, consumed with fever and anxiety. On December 4th he had the score brought to his bedside, tried a passage, singing the alto himself ; but his strength gave way : he burst into tears, and put aside the score. But up to midnight he continued to give directions, and was seen in delirium to be puffing his cheeks to imitate the action of the drums. By one o'clock in the morning (it was December 5, 1791) he was no more. Next day, with a pauper's

funeral, without music and with no friends around the coffin, Mozart was laid in the common grave of St. Marx churchyard, at Vienna. Research has failed to identify the exact spot, nor can his bones be found. So ended the greatest of musicians, at the age of 35.

Mozart was very short, with a pleasant but somewhat feeble countenance, beautiful hands and feet, hair and eyes; but his appearance was far from impressive. He was affectionate, generous, sociable, joyous, and sympathetic; but at the same time careless, weak, improvident, and not uniformly abstemious. As a person he has little to recommend him except a childlike symplicity and lovable nature; but his genius is one of the most distinct in human history. He has been well compared to Raffaelle, inasmuch as they two of all artists, at least in the modern world, have lived in one unbroken life of beauty, and have clothed with instinctive grace every side of their art and of life. It is the peculiar gift of Mozart to have left to the world abiding and superb works in every one of the forms of music—song, sonata, concerto, symphony, mass, and opera. In his instrumental pieces he greatly advanced the science, and opened to it new fields. In song he is acknowledged as supreme. No other master has left an equal number of exquisite airs of which the world is never tired. In symphony and in mass he has been equalled or surpassed only by Beethoven and Bach; but in opera he is acknowledged to have produced the perfect type.

In musical art the test of power to impress the imagination of numbers in various ages and races is decisive. The philosopher, the man of science, the inventor, can produce his vast social efforts, indirectly through the medium of other minds. It is enough that Aristotle, Kepler, Newton, Descartes, Gutenberg, are followed by competent minds who can give to posterity the results of their work. Even in poetry, it is enough that Æschylus and Dante have given to mankind eternal types of tragedy and sacred poem, which the masses of men know only by repute. But in music the business is to delight, to touch the soul, and to elevate the spirit; and its effects can be indirectly extended in a much less degree. It is not the business of musical creation to astonish a coterie or to delight virtuosi. When in art men talk of "learning," "profundity," and "subjective consciousness," we know that they are passing into the field of abstract science, not of concrete expression. Music must rouse enthusiasm in races and throughout ages. Judged by this test, the supremacy of Mozart is plain. Those who would place beside him or above him Bach, Handel, and Beethoven are still amongst his passionate devotees. Whilst to the Latin-speaking races of the Old and New World the other German masters are comparatively unknown, Mozart is, to all who love pure melody, without a rival; and, to those who prefer elaborate harmony, he is not second.

[F. H.]

See under Pergolese. Many portraits—one as a boy by Carmontelle, N.G.

MODERN PHILOSOPHY

THE aim of Philosophy is to arrange man's thoughts about himself and the world into a connected whole. The first condition of success is that the method pursued shall be the same throughout; and this condition has been filled by the Positive synthesis alone. All other philosophies have laboured under the fatal difficulty that while some classes of facts were regarded as controlled by supernatural agencies, others were subject to natural laws; others again held an equivocal position. In the details of his daily activity, man has been of necessity a Positivist from the first. The regular succession of day and night, of the seasons, of the growth of crops, the uniform quality of the metal, or stone, or wood which he worked, even the moral uniformities of human character, have been forced on him from the beginning. Thus it is that in all preliminary philosophies, theological and positive conceptions have been incoherently mixed. Positive science—that is to say, the extension to abstract speculation of the common sense and observation always instinctively applied in the arts of life—began with Greek geometry, and was extended by the genius of Aristotle to other spheres. By the close of the Greek period the conception of abstract natural law—that is to say, of the existence of uniformities amidst phenomena that seemed to be indefinitely variable—had deeply penetrated.

Scientific speculation had been arrested by the social necessities that led to the establishment of the Catholic Church. Holding at first entirely aloof from philosophical debate, the Church found it necessary at last to strive for a firm intellectual foundation. She sought for this in the philosophy of Aristotle, as applied and systematised by the schoolmen, of whom Aquinas may be taken as the type. This was her culminating point, and also the beginning of her decline. The schoolmen challenged discussion, and discussion was fatal. The *Summa* of Aquinas is fraught with the elements of its own destruction.

The intellectual movement of Europe from the 14th to the 18th centuries had two distinct currents; destructive criticism of the old Monotheistic synthesis on the one hand, collection of materials for the Positive synthesis on the other. The two functions, though not always performed by the same organs, were yet inseparable. Without some dissolution of Catholic doctrine, scientific research was impossible. Hence the necessity for the Reformation, with all its

partial and unsatisfying solutions. Protestant Holland gave Descartes a home: Galileo's life, difficult in Italy, would have been crushed in Spain. And, in its turn, scientific research became the most powerful of solvents. Such men as Kepler and Galileo, Descartes and Bacon, while building up the new synthesis, necessarily displaced the old. The metaphysical revolution initiated by Descartes led ultimately to direct onslaughts on received beliefs far more formidable than those of the Protestant reformers.

Of this twofold movement of upbuilding and destroying, René Descartes is the most complete representative. The critical philosophy and the positive philosophy each received from him their most potent impulse. He initiated the great mathematical evolution that enabled Newton to interpret the solar system; in his views on light and heat he anticipated modern physics; he was the first to welcome Harvey's discovery of the circulation of the blood. And on the other hand he was the first pioneer in the path leading to the destructive process of the 18th century, issuing at last in social upheaval. In the hands of Hobbes and Spinoza the movement of demolition went on apace; opponents helped it forward equally with friends: for the Pantheism of Spinoza was less dangerous than the Theodicy of Leibniz. Locke frankly abandoned the struggle for absolute knowledge. Hume and Diderot proved its impossibility; Kant completed the process. All these men were builders no less than destroyers. Knowing Man to be Man's proper study, they added to our knowledge of his nature. By construction no less than by demolition they prepared the way for the advent of Humanity.

The month appropriated to Descartes is divided as follows:

The first week deals with the Scholastic Philosophy. This is the point at which ancient and modern thought were brought into contact, by the systematic attempt of Albertus Magnus, Aquinas, and others, to use the logic of Aristotle in defence of the creeds, and to reconcile Faith with scientific speculation. It was the last effort of the Church to assert her intellectual supremacy in Europe. The early scepticism, unsupported by scientific research, to which this mighty constructive effort gave rise, is also represented in this week by such names as Ramus, Erasmus, and Montaigne.

The second week represents the philosophical speculation of the 17th and 18th centuries dealing with the individual nature of man, physical and moral, for the most part in a preparatory and inductive way. Hobbes, Locke, Vauvenargues, Diderot, and Cabanis are here commemorated. Of those who thus bound Philosophy down to human service, the most illustrious name is Bacon.

The third week, covering nearly the same period, is devoted to the philosophical study of Man in his social relations. Leibniz is here the presiding type. With him are associated the great writers

on principles of law, Grotius, Cujas, and Montesquieu; writers on the philosophy of history, as Vico, Fréret, Herder; Winckelmann, the historian of art, and Buffon, who dealt with the relations of the human species to other animal races.

The fourth week represents philosophy in its final stage of preparation, immediately antecedent to Positivism. Under the presidency of Hume, who in discussion both of human nature and of social life, industrial and religious, approached very nearly to the Positive stage, we have the philosophic historians, Robertson and Gibbon; Condorcet, the immediate predecessor of Comte in the Positive theory of history; De Maistre, to whom is due the first appreciation of the mediæval system from a human stand-point; finally the three principal representatives of modern German speculation—whose views on historical philosophy were largely concurrent with those of Comte—Kant, Fichte, and Hegel. [J. H. B.]

DESCARTES (*René*), b. 1596, d. 1650.

René Descartes was born March 31, 1596, at La Haye, in Touraine, when Bacon, Galileo, and Kepler were in early manhood. His father was an hereditary member of the provincial government in Brittany. Like Voltaire, Diderot, and other audacious thinkers, he was taught by the Jesuits. At the age of eight he was admitted to their college of La Flèche; and he remained there for eight years. With some members of the Order, as also with the monk Mersenne, who had been his fellow-student, he maintained intimate correspondence throughout his life.

In his celebrated *Discourse on Method*, Descartes explains that, while highly valuing the literary culture thus received, he was impressed at a very early age with its failure to afford him any basis for fixed conviction. In philosophy every opinion could be defended and attacked with equal probability. Scientific research was either tainted with magic or vitiated by metaphysical subtlety; mathematics, the most attractive subject to his mind because the most certain, had not been used as the basis of other studies. Therefore, his school course being over, he betook himself to study in the great book of the world, where the judgments of men would be guided not by fantastic pedantries, but by the sense of responsibility for failure if the judgment were wrong.

After passing four years in Paris, he took service, in 1617, with Prince Maurice of Nassau; in 1619, the Thirty Years' War having now begun, he enlisted with the Duke of Bavaria on the Imperial side, and was present in the following year at the battle of Prague. He left the army in 1621, but continued to travel incessantly in France, Switzerland, and Italy till 1628. He settled at last in the

city of Amsterdam, where he enjoyed the advantages of civilisation, and the still greater advantage of freedom from irritating controversy or persecuting assault, every one around him being peacefully occupied with his own affairs. He paid an occasional visit to Paris, and maintained a steady and copious correspondence with friends interested in his philosophic work. In 1649 he unfortunately gave way to the urgent solicitation of Queen Christina of Sweden to visit her at Stockholm. But the Scandinavian winter was too much for him, and he died of inflammation of the lungs, February 11, 1650. His body was taken to Paris, and after several removals was ultimately interred in the church of St. Germain-des-Prés.

The two movements, constructive and destructive, which characterise modern history are seen prominently contrasted in the work of Descartes. His aim, indeed, was to produce a complete synthesis of truth, built up on the simplest and clearest of all truths—those of mathematics. But from this synthesis the facts of man's mental and moral life were practically excluded, or rather were handled on a different method, the analysis of consciousness ; which in the hands of his successors, from Spinoza to Hume, has been so potent a solvent of theological dogma.

Whatever beliefs may perish in the process of subjecting them to rigid scrutiny, yet one thing, he said, remains. The existence of the being who undergoes this process of doubting is a fact from which there is no escape. *Cogito, ergo sum.* From this one firm truth Descartes deduced, as no less certain, the existence of God. The inference is not obvious. Spinoza could not adopt it ; Kant rigorously assailed it. It saved the philosophy of Descartes from persecution, and left him free to work in peace. Meanwhile the solvent action of his analysis went on rapidly.

But though the metaphysic of Descartes has been of late years better known than his scientific construction, it occupied far less of his thought and energy. His principal purpose was to explain the whole visible world, including the physical structure of man, in accordance with fixed laws derived from the simplest facts of form and motion. It was a philosophy of evolution as opposed to creation. To soothe the theologians, who in his time were pressing so hardly upon Galileo, Descartes was content to say that the operation by which God maintains the world is similar to that by which he created it ; so that, if it had pleased him, instead of creating it instantaneously, to allow these laws of evolution to operate, the result would have been what we now see. He began by assuming space to be occupied by perfectly homogeneous and continuous matter. He then supposed this solid substance to be divided into parcels of various shape and size, each of them animated by motion in various directions. These would observe the laws of motion as Descartes defines them :—1. Each would maintain its own condition of rest or motion or magnitude, until altered by contact with another.

2. In such contact the gain or loss of motion to one body would be exactly compensated by the loss or gain to another—the total quantity of motion in the world remaining invariable. 3. Owing to constant contacts, motion would be usually in curved lines, the moving body tending always to follow the tangent to the curve.

The result after a period of time would be the differentiation of primitive matter into three kinds. The moving portions of matter, by constant attrition, would be for the most part converted into spheroidal molecules of various sizes. Some larger masses of irregular shape would amalgamate into solid masses; the finer particles rubbed off from the molecules would insert themselves between them, vibrating with far more rapid motion than they. This vibrating ethereal substance would collect towards the centre of a vortex, and form a sun or star: round it would revolve aërial matter, and plunged amidst this, at various distances, the solid masses of the planets. How by degrees yet further differentiation took place in the substance of the earth and planets, by different velocities and shapes of the component molecules, so that the various metals and crystals arose, and finally plant life and animal life, cannot be told here, but is described in the *Principia* and in the *Treatise on Man*. For man, so far as the structure of his organs, including the organs of sensation, were concerned, was brought within the range of those mechanical conceptions. Descartes was among the first to welcome Harvey's discovery of the circulation of the blood, as the first great step towards the reduction of vital phenomena to physical laws.

The achievement of so vast a task was obviously not possible while the science of Physics was in its infancy, and while the chemical basis of Biology was still undiscovered. Descartes was aware of this. But he looked forward to the combined labours of the future for its fulfilment; and the last chapter of his *Discourse* contains his forecast of the Positive philosophy of the future, resting not on scholastic subtleties, but on a solid basis of mathematical and biological knowledge, and directed to the practical service of man. What Descartes could not foresee was, that by the time that Physics, Chemistry, and Biology had defined themselves as distinct sciences, the impossibility of reducing them to a single law would be far more evident than it was in his own time. He could not foretell that the complexity of the problem was to increase far more rapidly than man's power of solving it. The ultimate synthesis of the sciences was to depend not upon the deduction of them from a few mathematical axioms, but on their orderly grouping in nearer or more remote relations to the life of Man. Here lies the contrast between the Objective synthesis of Descartes, attempting to explain the universe, and the Subjective, or Human, synthesis instituted in the *Positive Philosophy* of Comte. To regard all the more complex phenomena as deductions from the simpler, to deduce all chemical

facts from physical, all biological facts from chemical, leads inevitably to the error of ignoring many of the subtlest and most significant facts in each department—the error generalised by Comte under the name of Materialism.

Nevertheless, Descartes' theory of Vortices served a most important purpose. It diffused through the intellect of the West, as a less audacious hypothesis could not have done, the sense of the subordination of all phenomena to fixed laws. Not less distinctly than Bacon, did Descartes recognise the systematisation of human life, the reign of Man, as the final object of pursuit. And the *Principia* of Descartes stimulated far more effectively than the *Novum Organum* the splendid mathematical and physical researches of the 17th and 18th centuries.

The superiority of Descartes is shown in the important steps which he took towards realising his own programme. His *Geometry* (published 1637) made an epoch in mathematical science. By showing that the distances of each point in a plane curve from two fixed lines followed a law which could be algebraically expressed by an equation involving two unknown quantities, he opened a new world to geometry ; in which groups of curves, hitherto separately studied, were subjected to a uniform algebraic process. And at the same time he gave precision to the idea of Law, by connecting it with that of Equation. From this discovery followed, in half a century, the transcendental calculus of Leibniz and of Newton. In Optics his researches were also fruitful, as his mathematical explanations of the form of the rainbow, hitherto a half-miraculous marvel, may suffice to illustrate. The analysis of white light into the prismatic colours is due to Descartes, and not, as commonly stated, to Newton ; and generally his views of Light, as a motion propagated through the ether, are far more nearly akin than Newton's to those now received. On many other subjects—as, for instance, Acoustics, where he did not achieve success—he left the impress of vigorous handling. It must not be forgotten that the audacity of his hypothesis had not the effect with him of discouraging experiment. On the contrary, he remarks that experiment became more necessary with each advance in knowledge. In simpler subjects, deductions from a few principles might suffice ; but, as nature became more complicated, experiment alone could decide by which of many possible modes she had arrived at a given result.

The positive synthesis of Descartes was an *objective* synthesis : an attempt to deduce all the phenomena of the universe from a single principle by mechanical process mathematically calculated. Though destined to fail, the attempt was of vast importance, both as an incentive to mathematical and physical speculation in the hundred years that followed, and as a proof that a future synthesis must rest on a different principle. Wholly abandoning the attempt to consider, much less to explain, the Universe as a whole, the final synthesis avowedly takes Man as the central point, grouping the

facts of Nature in orderly arrangement round him. In a word, while not ceasing to be scientific, it is subjective, not objective.

[J. H. B.]

H. Höffding: *A Hist. of Mod. Philosophy* (Eng. trans.). L. Lévy-Bruhl: *Hist. of Modern Philosophy in France. Phil. Pos.* i. 1, 12, vi. 56. *Pos. Pol.* iii. 482, 3. The *Discours de la Méthode* (Eng. trans. in Everyman's Lib.) and the *Géométrie* of Descartes are in the Positivist Library. Portrait by F. Hals, L. and R.S.

ALBERTUS MAGNUS, b. 1193 (or 1205), d. 1280.

ALBERTUS, whose surname Magnus was perhaps the translation of a family name, was of the family of the Counts of Bollstadt, and was born at Lauingen on the Danube. He studied at Passau, entered the Dominican Order, and taught philosophy in various German cities; finally settling in Cologne, where Thomas Aquinas became his pupil. In 1245 he went to Paris, and there, after three years' residence, received his doctor's degree. In 1254 he became Provincial of his Order; and was afterwards sent on a mission to Poland to suppress infanticide and other barbarous customs. In 1260 Alexander IV. summoned him to Rome, where he became Steward of the Palace, and took an active part in theological controversy. He afterwards, at the Pope's urgent request, accepted the See of Ratisbon, but resigned it after three years, and retired to Cologne, where, except for a short absence at the Council of Lyons in 1274, he remained till his death, 15th November 1280.

Albert may be regarded as the founder of that systematic study of Aristotle, regarded as an encyclopædia of knowledge, which played so vast a part in European thought from the thirteenth to the sixteenth century. Translations of Aristotle's works from the Greek and Arabic had been recently made by order of Frederick II. On these Albert wrote Commentaries which fill five folio volumes. In the metaphysics he supplements the shortcomings of the Aristotelian Deity, little more than a centre of motion, by the ethical attributes due to Catholic theology. In the physical, biological, and sociological treatises, he follows his author more closely, yet in no servile spirit. He applied his master's scientific method to new researches; and especially to those relating to the composition of minerals, which he felt to be the missing link between the science of the stars and the science of man. The five books of his treatise *De Mineralibus* are perhaps the first attempt to classify inorganic substances with reference to chemical origin and distribution. He divides them into the three classes of rocks, metals, and intermediate substances, these last including salt, nitre, alum, arsenic, amber, and some others. Aristotle's principle of the four elements being taken as a starting-point, all are conceived as composed of one or more of these in varying proportions: metals

exhibiting a more complicated composition than rocks, and owing their special character to two substances, sulphur and quicksilver. But the most striking feature of the treatise is the careful observation of natural facts. He had travelled far and wide, he tells us, to examine mining-works, with the view of seeing how each of the metals was mixed with the rocks in which it was found. The same zeal led him to devote time to the experiments of the alchemists, from whose charlatanry he was kept free by his breadth of view and his synthetical purpose.

Not less remarkable are his commentaries on Aristotle's biological works. In his treatise on animal motion, he discusses whether the ultimate principle of such motion is the brain or the heart. His conclusion that though the heart is the ultimate basis of life, yet that the vital spirit acts by the medium of the sensory organs—nerves, brain, and muscles—is a remarkable approximation to the truth. [J. H. B.]

Phil. Pos. v. 54, vi. 56; also *Pos. Pol.* iii. 411. [There is no good account of Albert in the histories. Direct reference to his works has been made here.] He was buried in the Dominican Church at Cologne.

JOHN OF SALISBURY, b. abt. 1117, d. 1180.

JOHN OF SALISBURY was born somewhere in the diocese of that name. He came to Paris in 1137, and studied dialectic under Abelard, Alberic of Rheims, and Robert de Melun, afterwards Bishop of Hereford. He also mentions his teachers in grammar, in logic, and in theology. In those studies twelve years were spent, during which he maintained himself by teaching children of the nobility. He was then appointed secretary to Theobald, Archbishop of Canterbury, and his correspondence shows that he took an active part in the controversy as to the rival popes, Alexander III. and Victor IV. He is best known by two works: (1) the *Policraticus*, dedicated in 1159 to Thomas Becket, a satire on the follies and vices of the nobility, containing exceedingly bold doctrines as to the supremacy of the Church over the State; (2) the *Metalogicus*, written about the same time. It throws much light on the educational methods of the time, against the shallowness and pedantry of which the writer protests. Formal logic, he says, was studied, but little else. The only true art of demonstrations, geometry, was neglected, except in the schools of Spain and Africa. John shows throughout his work a strong presentiment of the outburst of thought which came in the following century, when Aristotle's physical and biological works were at last disclosed. In 1176 he was made Bishop of Chartres, where he remained till his death, A.D. 1180.

[J. H. B.]

Edition of his works and letters in five volumes, by J. A. Giles. Fleury: *Eccles. History*, bk. lxx. R. D. Hampden: *Scholastic Philosophy*. R. L. Poole: *Illustrations of the Hist. of Medieval Thought*. John of Salisbury was buried in the Monastery of St. Josaphat, near Chartres.

ROGER BACON, b. 1214, d. 1292.

ROGER BACON was born of good family at Ilchester, in the county of Somerset. After studying in Oxford he passed to Paris, where he took the degree of doctor, and probably lived for many years. By the advice of Grosstête, Bishop of Lincoln, one of the most learned men of his time, he joined the Franciscan Order. He was already known as an eager student in many new fields of knowledge. The obstacles placed in his way have been perhaps exaggerated; though it may be doubted whether in Paris he was not seriously hindered from carrying on linguistic and experimental research, and from teaching young men who came to him. He may claim to be the first founder of a school of scientific investigation. This indeed was the source of his fame: for he was debarred from publishing by the rules of his Order. His works would not have been written but for the intervention of Pope Clement IV., who had been formerly papal legate in England. Clement, in 1266, commanded Bacon to send him copies of his writings. They existed as yet in Bacon's brain only. But in the course of a year the *Opus Majus* was compiled, and was soon followed by other works, of which, however, no complete edition has been published. The after-details of Bacon's life are uncertain. His physical studies exposed him to charges of sorcery and heresy, for which he is said to have been imprisoned under the papacy of Nicolas IV. He died in Oxford at the age of 78 (1292 or 1294), and was buried in the House of his Order on the feast of St. Barnabas.

Bacon's great work was an attempt to renovate the European mind by philology and science. He begins by indicating the four sources of error:—authority, custom, popular prejudice, and self-conceit. He then explains that while accepting the Scriptures and the Church's canons, the Fathers and Doctors are not to be regarded as infallible or final. The Church, he says, has hitherto neglected the scientific researches begun by the Greeks, because in the struggle against Polytheism science was confounded with magic. But the rise of Greek philosophy was as surely a part of God's providence as the Mosaic Law or the Christian Church. We profit by these ancient studies; we should be fools indeed not to carry them on further.

These thoughts occupy the first two books. The third advocates the study of languages, especially Hebrew, Arabic, and Greek, without which neither the Scriptures nor Aristotle could be understood. Aristotle's writings are the foundation of our knowledge; but the Latin translations of them are so bad that more harm comes of them than good.

The fourth book deals with Mathematics, which he calls the gateway and the key to the other sciences, because in them alone we attain complete certainty. They reveal our ignorance of the universe, showing that, though the earth is the central point, the

smallest of the fixed stars is larger, though itself infinitely small compared with the space of Heaven. Not less are they needed for the service of the Church, for Biblical chronology, for Church Music, above all for the reformation of the Julian Calendar, which involves a yearly error of the 131st part of a day. Finally this science is the foundation of astronomy, and thus exhibits to us the stellar influences regulating climate, temperament, and the predispositions of character.

The fifth book is a treatise on Light, and on the function of Vision. Bacon studies the laws of reflection and refraction : partially solving the problems of the rainbow, he deals with the propagation of visual impressions through space, with the structure of the eye, including its relations to the brain, and the distinction of sensations from perceptions. In the sixth book he discusses experimental science, which he was the first to conceive as a distinct field of work. Deductive reasoning, he says, leaves doubt behind it which experiment only can remove. Bacon clearly conceived the need of chemistry as a link between celestial Physics and the study of Man. He had expended a large fortune for the construction of apparatus for physical and chemical experiment, the influence of which on man's conquest of Nature he foresaw as clearly as his namesake of the 17th century. His work concludes with an ethical treatise not yet published. But his continual insistence on the moral factor in intellectual achievement is remarkable. The soul defiled by pride, envy, anger, or lust is, he repeats often, like a soiled mirror in which no images will appear.

Such was the work of this extraordinary man. He stands first among the initiators of modern scientific inquiry. But science for him was not the mere pursuit of disconnected knowledge ; it was the means of restoring the worn-out fabric of the Church by asserting its continuity with Greek thought, and its capacity for mental progress. [J. H. B.]

J. H Bridges : *The Life and Work of Roger Bacon*, 1914 ; this is a reprint, with some additions, of the introduction prefixed to his edition of the *Opus Majus*, 2 vols. 1897, supplementary vol. 1900. The *Opus Majus* was first printed in 1733. His other works, edited by Steele, are now appearing. *Phil. Pos.* vi. p. 206. *Pos. Pol.* iii. 411.

RAYMOND LULLY, b. 1235, d. 1315.

RAYMOND LULLY was born in Palma, Majorca, of a noble family settled there after the conquest of the island by James of Arragon. He was Steward of the Palace, and till the age of thirty lived the pleasure-loving life of a courtier. A love rigorously suppressed by the virtue of its object brought about a moral crisis. Inspired by a vision of the crucified Christ, he resolved to devote his life to the defence of the Catholic faith against the Musulman. He studied Arabic under a Mohammedan slave, and at the same time occupied

himself with a new method for the demonstration of Christian doctrine, much celebrated afterwards as the *Lullian Art*. This he expounded in Paris and in Montpellier, and translated into Arabic. After endeavouring, without success, to interest Nicolas IV. in his mission, and to induce him to open schools for the study of Oriental languages, he sailed for Tunis, and engaged in public discussion with Mohammedan doctors. His life was threatened, but he was allowed to escape. He repeated the attempt at Bugia a few years later, with the like result; and yet again when an old man of eighty, after a life spent in unflagging endeavour to develop his logical process, and to stir the Christian world to a dialectical crusade against the rival faith. On this last occasion he was stoned to death. His body was taken back to Palma, and buried in the cathedral.

The *Art of Lully* was an attempt to form an algorithm in which symbols and geometric figures are used for ideas and for processes of reasoning. The attempt was repeated by Giordano Bruno, and subsequently by Leibniz, who in his *Ars Combinatoria* makes frequent reference to Lully. [J. H. B.]

B. Hauréau: *Hist. de la Philosophie Scholastique.*

SAINT BONAVENTURA, b. 1221, d. 1274.

John Fidenza, commonly known as BONAVENTURA, was born at Bagnarea, in Tuscany, in 1221. During a dangerous illness in infancy his mother entreated the prayers of St. Francis, promising that, if her child recovered, he should join his Order. The happy issue is indicated in the name then given to him. He entered the Order in 1242; but he had already studied in Paris under Alexander of Hales, and subsequently under La Rochelle, the Franciscan professor of theology in Paris. In 1253 he succeeded to La Rochelle's office, in the same year, it is even said on the same day, on which Thomas Aquinas assumed the Dominican professorship. Both Orders were at this time violently attacked by William de Saint-Amour, a professor of the Sorbonne, and by others of the secular clergy. They were, however, defended by Alexander IV., and Saint-Amour's polemical treatise on the *Perils of the Latter Days* was condemned and publicly burnt at Anagni. In this matter the Pope had consulted both Thomas Aquinas and Bonaventura. While defending the Orders, care was taken to moderate their excesses; and the mystical writings of John of Parma, exaggerating the doctrines of Joachim, were also condemned. Bonaventura was made, in 1256, General of his Order, and the moderation and sweetness of his character did much to appease those controversies. In 1264 Clement IV. urged him to accept the archbishopric of York, and was with great difficulty induced to assent to his refusal. After the death of Clement in 1268 the Papal See was vacant for nearly

three years. In the negotiations which led to the election in 1271 of Theobald, Archdeacon of Liége (Gregory X.), Bonaventura took a leading part. In 1273 he was made Cardinal, and in the following year was summoned, with Thomas Aquinas and other doctors, to the Council of Lyons, in which an attempt was to be made to effect the union of the Eastern and Western Churches. That the attempt was for the time successful was largely owing to the conciliatory wisdom of Bonaventura. A few days afterwards (July 15) he died. He was buried at Lyons in the Church of his Order ; but his tomb was destroyed during the religious wars of the sixteenth century.

Bonaventura, known among the Scholastic thinkers as "Doctor Seraphicus," was the author of many mystical works, as the *Dialogue of God with the Soul*, the *Path of the Soul to God*. His philosophical system took what was then the common form of commentaries on the *Sentences* of Peter Lombard, the standard theological treatise of the twelfth century, expanded by the great thinkers of the thirteenth century with the aid of Aristotelian philosophy. Bonaventura in some respects was more Platonist than Aristotelian. Relying on the technical distinction between potential and actual, he considered that universals had a potential existence ; they became individual in act. Knowledge came from sensuous experience ; but the capacity of so deriving it depended on reflection, which obtains universals (ideas) by the contact of the soul with God. The leading feature of his philosophy was that Love was the Principle—the mode through which the soul rose to the highest truth. Hence the superiority of Christian teaching to that of the best Greek philosophers. For them Virtue was the mean between two opposing vices ; the object of Virtue being finite. But Love has no such limitations, its object being infinite.

In the twelfth canto of Dante's *Paradiso* the Franciscan Bonaventura celebrates the greatness of St. Dominic, as Aquinas the Dominican sets forth the greatness of St. Francis. [J. H. B.]

B. Hauréau : *Hist. de la Philosophie Scholastique.*

JOACHIM, b. between 1130-1145, d. 1202.

United with Bonaventura in the Fourth Sphere of Paradise, is the "Calabrian abbot endowed with prophetic spirit." He was born near Cosenza, in Calabria. Introduced to the court of Count Roger of Sicily, he soon left it for an ascetic life. After a pilgrimage to Palestine he entered the Cistercian Abbey of Curace, and ultimately founded a new house at Fiore. The saintliness and simplicity of his life are vividly depicted by his secretary Luke, afterwards Archbishop of Calabria. His life was spent in Biblical commentary, especially on the relations between the Old and New Testament, and in the *Prophets* and *The Revelation*. Here he had full scope

for the mystical and prophetical vein for which Dante celebrates him, and which attracted the attention of Richard I. on his passage to the Crusade. His commentaries were approved by the Popes Lucius III., Urban III., and Clement III., but in the Third Lateran Council doubt was thrown upon his orthodoxy. And indeed some of his views were of startling originality. As in the ancient dispensation the first person of the Trinity had been dominant, to be succeeded afterwards by the second, so the time was now coming when the third should prevail, and the truth dimly shadowed in the Old and the New Testament should be revealed in fulness and without disguise. The new era had already begun with St. Benedict, and would culminate in the middle of the 13th century. It is a matter for surprise that this startling conception of spiritual progress should have been received so tolerantly ; but the two powerful orders of Dominicans and Franciscans, whose renovating efforts he was thought to have foretold, shielded his memory from blame. Joachim died 30th March 1202. He was honoured locally as a saint, though not canonised. [J. H. B.]

Fleury : *Hist. Eccles.* bk. lxxxiv. and lxxxv. Dante : *Paradiso*, xii. 140. Joachim is buried at Flore.

RAMUS, b. 1502 (or 1515), d. 1572.

Pierre Ramée, commonly known as RAMUS, a shepherd's lad from Picardy, escaped from home to Paris and found menial employment in the College of Navarre, where he was enabled to study, making rapid advance with little help. The study of Aristotle, which three centuries before had been the sign and instrument of intellectual progress, had now become an obstructive superstition. When Ramus presented himself for his master's degree, he undertook what seemed the impious task of proving that Aristotle was not infallible. The development of this thesis was the principal work of his life. In 1543 he published his principal work, *Institutiones Dialecticæ*. It was regarded as heretical, and the University prosecuted Ramus before the Parliament of Paris. Francis I. intervened in the dispute, with the result that the book was suppressed, and Ramus was prohibited from teaching against Aristotle under pain of corporal punishment. Being a distinguished mathematician, he occupied his leisure in preparing an edition of Euclid. He continued to teach, in spite of the opposition of the Sorbonne ; and in 1545 his disabilities were removed by the Cardinal of Lorraine. In 1551 he was made Professor of Philosophy and Rhetoric in the Collège de France, and during the next fifteen years published various works on mathematical and classical subjects. He was known to sympathise with the Reformation, and during the civil wars he left Paris in 1568 for Germany, where he was received with much honour. He taught mathematics at Heidelberg, and there made a public

profession of Protestantism. Shortly afterward he returned to Paris, where he perished in the Massacre of Saint Bartholomew, 1572. [J. H. B.]

H. Höffding: *Hist. of Modern Philosophy* (Eng. trans.).

CUSA (*Cardinal*), b. 1401, d. 1464.

Nicolas Chryftz, a fisherman's son, was born at the village of Cus on the Moselle, near Trèves, and hence derived his name of CUSA. The boy attracted the attention of Count Manderschied, who had him educated at the University of Deventer. He soon became celebrated for scientific and philosophical attainment, and also for aptitude in the conduct of affairs. At thirty he became Archdeacon of Liége, and in this capacity took part in the Council of Basle. He defended there the rights of Councils, but took the side of Eugenius IV., by whom he was sent in 1435 on a mission to Constantinople. After the conquest of that city by the Turks, he was charged by Nicolas V. with the preparation of an appeal for the union of Christendom. He was for some time Governor of Rome, and was also much occupied with the trouble of Bohemia. He died at Todi in Umbria, 1464.

Throughout his busy life he found time to enter with the keenest energy into the intellectual movement of his time. He left many philosophical and mathematical works, in one of which, *De doctâ ignorantiâ*, and also again in the *Corollaria de Motu*, he distinctly denies the doctrine that the earth is stationary, and maintains the infinity of space. The earth, he said, is not the centre of the universe. There is indeed no such centre. The system of the world has its centre everywhere, its circumference nowhere. The earth moves, and it moves in a circle, though not describing the complete circumference. [J. H. B.]

H. Höffding: *Hist. of Modern Philosophy* (Eng. trans.). Cusa is buried in San Pietro in Vincoli, Rome.

MONTAIGNE (*Michel de*), b. 1533, d. abt. 1592.

Michel DE MONTAIGNE, younger son of Pierre Eyquem, a squire of Perigord, was born February 28, 1533, in a village from which he took his name. His father, a man of vigorous and eccentric character, took much pains with his education. He had him held at the font by poor people, and brought up in one of his peasant's cottages, to inure him in hardy ways of living, and give him a fellow-feeling with the poor. He was taught Latin colloquially by a German tutor, and made early progress with Greek; was then sent to the College of Guienne at Bordeaux; and at the age of fourteen began the study of law. At twenty-one he became a municipal councillor

of Bordeaux. He passed some years at court under Henri II. and Charles IX., and obtained from the latter the Order of St. Michael. But the religious wars filled him with distaste for public life, and in the year before the Massacre of St. Bartholomew he retired to his estates, resolved to spend the rest of his life in study. Between 1571 and 1580, he wrote his well-known essays. After a period of travel in Italy, we find him again in Paris, engaged in attempts to reconcile Henry of Navarre and the Duke of Guise. Here his tender friendship began with Mademoiselle de Gournay, whom he regarded as his adopted daughter, and to whom his widow intrusted the task of publishing the first complete edition of his works ; here, too, he came into contact with De Thou and Charron. The last three years of his life were spent in retirement. He died 13th September 1592.

Montaigne presents to us a state of mind completely detached from ecclesiastical dogma, but too vigorous and well balanced to accept the partial reforms of Luther and Calvin, which he thought dearly purchased by the long years of rancour and civil strife that followed them. He saw that the Catholic ceremonial stirred men's souls with emotions that raised them to higher things ; and he would not throw away a certain good for an imaginary and very doubtful better. The scepticism of Montaigne went far deeper than doubt of Church doctrines. It went almost as far as the question asked half a century later by Descartes—What is there that is certain ?—only that Montaigne could not, like Descartes, find an answer. Science for him was as uncertain as Theology. Copernicus, he said, was making a revolution in astronomy, Paracelsus in medicine. But was it certain that these revolutions would not be themselves upset by future inquirers ?

Yet it is not on account of his scepticism that Montaigne is placed in this Calendar, where little honour is paid to merely negative or destructive work. His merit is that by simple observation of the facts of human life, inspired by honest and genial sympathy, he tried to build up a human morality, and to lead men into the path of justice, integrity, and forbearance, without appeal to supernatural fears. He saw clearly the relativity of human knowledge. The senses, through which knowledge entered, were too imperfect and too few to reveal to us more than a fraction of the truth. Intellectual culture was but a small part of life. There seemed to him far more true philosophy in the life and conversation of the peasant than in that of most philosophers and teachers. The first cares to know what is of practical use to him : the professor teaches us to define Virtue, but not to follow it. [J. H. B.]

Essays first published 1580-1588, translated into English by John Florio, 1603, and read by Shakespeare. English translation by Cotton (ed. by Hazlitt, 1877, 3 vols.). H. Höffding : *Hist. of Modern Philosophy* (Eng. trans.). Montaigne was buried in the Church of the Feuillants at Bordeaux. Portrait, Depôt des Archives, Paris.

ERASMUS, b. 1467, d. 1536.

ERASMUS was born October 28, 1467, at Rotterdam. He was the illegitimate son of Gerrit of Gouda, and during his father's lifetime was well cared for and instructed at the school of Deventer, where he learned Greek. At his father's death his guardians proved dishonest, wasted his inheritance, and compelled him for a livelihood to enter a monastery. His scholarship obtained for him the post of private secretary to the Bishop of Cambrai, who in 1496 gave him the means of studying in Paris. Here he maintained himself, though with much difficulty, by teaching. During subsequent years he led a wandering life in many European cities. To England, where he made the acquaintance of More, Colet, Linacre, and other scholars, he was specially attracted. In 1506 he visited Rome. Julius II. dispensed him from his monastic vows; and he improved his knowledge of Greek in Venice and Bologna. In 1510 he again visited England, hoping for preferment from Henry VIII. He was appointed Lady Margaret Professor of Divinity in Cambridge, and resided for some time in Queens' College. In 1514 he went to Flanders, and became a Councillor of Charles V. In 1516 his great work, the first edition of the New Testament in Greek, was published in Basle. There, too, a few years afterwards, his *Colloquies* was published, a manual of Latin conversation, full of witty onslaughts against the abuses of the Roman Church—as also had been his *Praise of Folly*, written some years before in England. Luther and the Reformers had great hope that he would join their cause, and spoke of him at one time as "our glory and our hope." But Erasmus frankly avowed that he had no bent towards martyrdom; and, further, he was not slow to see that the Reformation was misnamed. "We hear cries of Gospel everywhere," he writes: "we should like to see a little gospel morality." "The cities of Germany," he says again, "are full of escaped monks, married priests, hungry and mendicant. They neither teach nor learn. Discipline and piety fall to the ground." He never threw off his adherence to the older faith. In 1535 Paul III. offered him a cardinalate. But the honour came too late, and in the following year, July 12, he died at Basle.

[J. H. B.]

J. A. Froude: *Life and Letters of Erasmus*. P. S. Allen: *Letters of Erasmus*. He is buried in Basle Cathedral. Portrait by Holbein, L.

CAMPANELLA (*Thomas*), b. 1568, d. 1639.

Thomas CAMPANELLA was born at Stillo in Calabria, 5th September 1568. He entered the Dominican Order at fourteen, and devoted himself to philosophical study. This soon took the form of revolt against the Aristotelian philosophy; a degenerated pedantry, bearing little resemblance to what was known by that name in the days of Roger Bacon and Aquinas; but regarded by the hierarchy as the bulwark of established opinions and institutions. In 1591

Campanella's insurgent tendencies found vent in his *Philosophia Sensibus Demonstrata*, published at Naples, an attack on "those who philosophise by their own arbitrary notions, not taking sensible nature as their guide." This exposed him to the suspicions which in a few years were to be fatal to Giordano Bruno. He left Naples for Tuscany, where for some years he was protected by the Grand Duke. But in 1599 he was accused of complicity in a plot which, by the aid of the Turks, was to destroy the Spanish power in Italy. Proof of this was never furnished; though it is likely enough that he looked with detestation on the Spanish Government as the stronghold of oppression and obscurantism. He was imprisoned in Naples for twenty-seven years; for part of that time he was treated with extreme rigour, and was frequently subjected to torture. After a time he must have had more freedom, as most of his philosophical works were written in prison, and published in Germany. In 1626, at the intercession of Pope Urban VIII., he was set free; but, being still held under close observation, escaped in 1634 from Rome to Marseilles. The Duke de Noailles, the French Ambassador at Rome, introduced him to Louis XIII. and Richelieu, from whom he received a pension. He died 21st May 1639, in the convent of the Jacobins in the Rue St. Honoré, Paris.

The philosophy of Campanella marks the transition from the mediæval philosophy, in which the doctrines of the Church were consolidated and supported by the authority of Aristotle, to the new philosophy inaugurated by Bacon and Descartes, in which meditation on the Divine attributes was to give place to the scientific study of Nature and Man. Campanella put forward a complete system (*Philosophiæ Realis Epilogistice*), beginning with *Phisiologia* (which included Cosmology as well as the study of life), and ending with three treatises on *Ethics*, *Politics*, and *Economics*; the second of these containing a picture of an ideal State, called the City of the Sun. Of his physical speculations the most prominent was his view that sensation was not peculiar to living matter, but was shared in its degree by inorganic matter also. On this he wrote a substantive work, *De Sensu Rerum*, published 1620. His genius was essentially of a synthetic and poetic cast, and gave him glimpses of great truths not systematically investigated. Very striking, for instance, is his perception of a principle somewhat new even in our time, that all our senses are modifications of the sense of touch (*De Sensu Rerum*, ii. 12). His defence of Galileo, published, like most of his other works during imprisonment, indicates much courage. He did not venture to defend the Copernican theory; but he took the line that Moses and Jesus did not occupy themselves with scientific statement; maintaining thus a clear field for the operations of reason. [J. H. B.]

H. Höffding: *Hist. of Modern Philosophy* (Eng. trans.). H. Hallam: *Literature of Europe*, vol. iii. Works, 1620-1640. The *Civitas Solis* and some others have been translated into French and into English (*e.g. The City of the Sun* in *Ideal Commonwealths*, ed. by H. Morley). He was buried in the Church of the Jacobins, Paris.

SIR THOMAS MORE, b. 1480, d. 1535.

Thomas MORE was born in Milk Street, London, his father being a judge. He was educated at Oxford, where he became the friend of Erasmus. He gained great distinction as a lawyer, and served in Parliament under Henry VII. and VIII., the last of whom intrusted much important business to him, and on the downfall of Wolsey, in 1529, made him Chancellor. Refusing to co-operate in the King's revolt against the Catholic Church, he resigned his office in 1532. In 1534 he was committed to the Tower; and, persisting in his refusal to subscribe to the King's ecclesiastical supremacy, was beheaded July 6, 1535. He was a man of singular beauty and elevation of character. The memory of his daughter Margaret can never be dissociated from his own. He lies in the parish church of Chelsea; his house, so long a centre of refined hospitality, stood hard by.

His principal work is his *Utopia*, published 1516: a picture of an ideal State established in an island of the Southern Seas. By community of property, idleness and luxury were repressed, the working day reduced to six hours, and time saved for mental culture and recreation. Regulations for markets and hospitals secured the health of cities. War, though not suppressed, was restrained; slave-traffic forbidden. Family life was the basis of public order. There was a Church as well as a State, and a married priesthood. But the number of priests was rigorously limited, and there was perfect toleration of religious differences. Especially remarkable are his protests against the sanguinary punishment of trifling crimes, then and long afterwards the disgrace of English law; and his view of National Education as the great preventive of crime.

More was a Platonist: but there is no servile imitation of Plato's *Republic* in this remarkable work; which ranks, with the *Civitas Solis* of Campanella, as one of the earliest and best examples in modern literature of a branch of inventive art destined, in Comte's opinion, to be more systematically cultivated in the future. "Utopias," he says (*Pos. Pol.* i. 229) "are to the art of social life what geometrical and mechanical types are to their respective arts. . . . Every great political change has been ushered in, one or two centuries beforehand, by some corresponding Utopia: the product of the æsthetic genius of Humanity working under an imperfect sense of the circumstances and requirements of the case." [J. H. B.]

F. Seebohm: *The Oxford Reformers*. Numerous translations and editions of *Utopia*. Several portraits by Holbein (copy, N.P.G.).

ST. THOMAS AQUINAS, b. abt. 1225, d. 1274.

Thomas, commonly called AQUINAS from the small town in Campania, Aquino, where he was born, came of an ancient and noble family. His childhood was passed at the Benedictine monastery

of Monte Cassino; afterwards he studied at the University of Naples, then recently established by the Emperor Frederic. In 1243, against the wish of his family, he entered the Dominican monastery of that city. On a journey to Rome he was waylaid by his brothers, and kept for a year a prisoner in a castle belonging to the family. Escaping thence, he was sent by the Order to Cologne, where he began the systematic study of Philosophy and Theology under Albertus Magnus. The taciturn student was smiled at as the "dumb ox"; but "the voice of that ox," said Albert, "will one day fill the world." With Albert in 1245 he went to Paris. There in 1253 he began to expound Peter Lombard's *Sentences*; and a few years afterwards he received the degree of doctor. His fame spreading, Pope Clement IV. offered him the Archbishopric of Naples, which he firmly refused; having already devoted himself to his systematic work on Theology. Of his absorption in this work stories are told: as that, when dining at the table of Saint Louis, he struck the board violently, with the exclamation, "This is conclusive against the Manichæans!" The King, no way disconcerted, ordered his secretary to take the argument down. In 1273 Aquinas was summoned by Gregory X. to take part with other doctors in the Council of Lyons. On his way he was seized with sudden illness, and died on 7th March 1274, at the Cistercian Abbey of Fossa Nova, in Campania.

To appreciate the work of Aquinas and the Schoolmen, we must realise the intellectual shock given to the Western mind by the spread of the Mohammedan faith, and by the revival of Greek learning under Mohammedan auspices. Monotheism, stript of the mysteries of the Catholic faith, had spread over Eastern Europe and Spain, and, by absorbing and propagating Greek thought, was asserting intellectual supremacy. The solvent effects of contact between East and West had already shown themselves in the heresies with which Southern France teemed, and which had roused the fervour of Dominic. Against this formidable invasion the Schoolmen, headed by Aquinas, instituted a spiritual crusade. Their purpose was to defend by Aristotelian logic such portions of the Catholic creed as admitted of a demonstrative process. With regard to the rest, they strove to show that, though beyond reason, it was not inconsistent with reason, and that, taken as a whole, the creed was a solid body of co-ordinate and coherent truth.

Of those defenders of the faith, Aquinas was far the greatest. In 1256 he published his treatise *Contra Gentiles*, in which Catholic principles are defended against the new enemies without and within. Ten years later this was expanded into his great work the *Summa Theologiæ*: which remains to this day the most comprehensive and complete of all expositions of the Catholic system.

The work has three divisions, broadly corresponding to the subjects God, Man, the Church. The existence of God is demonstrated, on Aristotelian principles, as the final source of motion, itself un-

moved. But how pass from the Aristotelian to the Christian God? To demonstrate the Trinity was infinitely beyond human power. Nevertheless even here Reason must not abdicate. In human nature rightly fathomed was to be seen something that rendered the mysteries of the Faith not indeed intelligible but conceivable. Those things, Aquinas explains, that are said of God are to be interpreted by analogies drawn from the highest of created things. Whoever understands, is aware that in the act of understanding there issues somewhat from his mental power and knowledge, which is the concept of the thing understood. This is the Word—first unspoken, then spoken. So, too, in the operation of Will there is within us something else that proceeds, a proceeding of love, by which the loved object is said to dwell within the lover (i. 32, § 1-3).

But disquisitions on the nature of Being and the existence of God, though the foundation of the Catholic system, yet occupy but a small portion of it. Even of this first division of the work, a large part is occupied with the attempt to reconcile the accepted conclusions of physical science with the Mosaic account of the Creation; and with the relations of mind and matter, as illustrated in the contrast of human nature with the bodiless intellects called angels—a discussion fertile in after consequences. Under the guidance of his master Albert, Thomas had thoroughly assimilated the physical science of his time. He had begun his career by voluminous commentaries on the physical and metaphysical works of Aristotle. Enough was known of the solar system and of natural history to render the acceptance of the Hebrew story of Creation very difficult. Why was light created on the first day, and the stars on the fourth? Why was the Moon called one of the two great lights, being smaller than any of the planets? Why were birds and reptiles said to issue from the water, quadrupeds from the land? These and countless other objections are fully set forth. The task of reconciling Science and Scripture, familiar to our own times, then begins; the result being that a far wider pathway was opened for scientific research than is commonly supposed.

The second and most important division of the work deals with the moral government of man. It has two parts, the first discussing the more general aspects of human conduct, the second the more special. In the first the principal subjects considered are free-will; human passions; virtue and vice; sin, original, venial, and mortal; law, natural, Judaic, Christian; and grace. In the second subdivision each virtue is considered with its opposing vice; first the theological virtues of Faith, Hope, and Charity; secondly the cardinal virtues, Prudence, Justice, Fortitude, and Temperance. Throughout this part of the work the *Ethics* of Aristotle are far more frequently quoted than the Scriptures or the Fathers. It may be noted that in the discussion of Justice, Aquinas was considered by the great Grotius to have laid a sound foundation for the theory of International Law.

The third part deals with the Incarnation, the Sacraments, and the state of the soul after death. Of this part the first ninety chapters only are believed to be by Aquinas. It may be remarked that the doctrine of Papal infallibility, as the result of ultimate appeal in questions of disputed doctrine, is systematically maintained. Aquinas could not conceive of a society like the Church existing without government.

This brief sketch of the most comprehensive and philosophical presentation of the Catholic system is of course utterly inadequate. The minute and searching wisdom of the details, no less than the general plan, constitutes its value. The work consists of 521 chapters ; 119 for the first part, 114 and 189 for the two divisions of the second, 99 for the third. Each chapter is divided into several distinct propositions : the opposing arguments being in each case fully stated before the conclusion reached is justified.

Comte, in appreciating the strength and weakness of the Catholic system, remarks, with reference to the Scholastic Philosophy, on the superiority of the mediæval university to the Greek school, in that natural and moral philosophy were no longer separated, as was the case in Alexandria, but were embraced under one system, held together by the metaphysical abstraction of Nature and by the central dogma of theology. It was inevitable that the Scholastic philosophy, though emanating from theology, should become soon its rival. The preponderance of Aristotle tended more and more to detach the minds of thinkers from theological control.

[J. H. B.]

No adequate appreciation of Aquinas can be gained from any of the various abridgements of his works, which, giving simply catalogues of his conclusions, fail to indicate his methods, and the large field opened for free inquiry. *Phil. Pos.* v. 55, and vi. 56. *Pos. Pol.* iii. 411. See also R. D. Hampden's *Lectures on Scholastic Philosophy*, and B. Hauréau's *Histoire de la Philosophie Scholastique*. St. Thomas was buried at Fossa Nova, but in 1369 his remains were removed to the Dominican Convent at Toulouse.

HOBBES (*Thomas*), b. 1588, d. 1679.

Thomas HOBBES was born at Westport, near Malmesbury, in Wiltshire, 5th April 1588. His father was vicar of the parish. The boy showed zeal for study, and at fifteen was sent to Magdalen Hall, Oxford, where his contempt for the unreality of the logic of the schools found full vent. In 1608 he travelled with the son of William Cavendish of Hardwick (afterwards first Earl of Devonshire), with whose family he retained intimate connection through life. On his return he had frequent interviews with Bacon. In 1618 he published his translation of Thucydides. He was again on the Continent in 1629 ; and for the third time in 1634-7. On this occasion he saw Galileo, and was in close contact with Mersenne and other Cartesians in Paris. His scheme of Philosophy—covering the three subjects of Body, Man, Society,—was now definitely

formed. He was in France for the fourth time during the whole period of the civil war in England. His treatise *De Cive* was published 1645, and his most important work, the *Leviathan*, where his theory of man and society is fully developed, in 1651. Much offence was given to the clergy by this book, and by his controversy with Bishop Bramhall on Free-Will. In 1666 licence to print was refused him by Parliament, and after this date his books were printed in Amsterdam. *Behemoth*, his account of the civil wars, was published after his death. His later controversies with Wallis on mathematics were a regrettable waste of intellectual energy. Hobbes died at Hardwick Hall, 4th December 1679 (*æt.* 91) and was buried in the church of Hault-Hucknell.

Hobbes is regarded by Comte as the principal exponent in the 17th century of the negative philosophy which it was the work of the eighteenth to propagate and apply. In this respect Spinoza is associated with him. The principles of this philosophy once instituted, their dissemination by such men as Rousseau, Holbach, or Helvetius was a comparatively easy task. But the men from whom they sprang were philosophers of the highest rank, surveying the whole field of life.

The principal characteristics of this philosophy were (1) mentally, the institution of metaphysical entities, especially Nature for God ; (2) ethically, the doctrine of self-interest as the foundation of social and moral life ; (3) politically, the complete subordination of spiritual to temporal power.

All these principles, so popular in the 18th century, were systematically worked out by Hobbes. But associated with them were positive truths of the highest value.

(1.) Philosophy, as he conceived it, was limited to the study of phenomena, inferring effects from observed causes, or causes from observed effects, and systematically excluding theology or transcendentalism of every kind.

(2.) The purpose of Philosophy was social. His maxim, *Theoremata propter problemata, id est propter artem construendi*, may recall Comte's *Induire pour déduire, afin de construire.* The distinction of Western Europe from Oriental and savage countries was traceable to the philosophic principles deeply rooted in the former. The hope for the cessation of social anarchy lay in the formation of fixed principles of conduct (*De Corpore*, ch. i.).

(3) His scheme of Philosophy included (*a*) First principles ; (*b*) Geometry and Physics ; (*c*) Man biologically regarded ; (*d*) Man as a social being. We have here the germ of the true classification of the sciences, proceeding from the simpler to the more complex.

(4.) In Psychology, the higher portion of Biology, Hobbes reached important truths as to sensation ; the action of the outer world, through a medium, on the organs of sense, provoking a reaction in these organs. He thus avoided the fallacy of supposing any resemblance between the object and the sensation produced by it

(*Leviathan*, ch. i.). His remarks on the association of ideas are also of great value (*Leviathan*, ch. iii.).

(5.) In Social Statics Hobbes made the principal step taken since Aristotle, by his demonstration that government, whatever its form, necessarily rested on force. His views on this point are developed at great length in the *De Cive* and in the *Leviathan*. [J. H. B.]

Sir L. Stephen: *Hobbes* (Eng. Men of Letters). A. E. Taylor: *Thomas Hobbes*. H. Höffding: *Hist. of Modern Philosophy* (Eng. trans.). *Phil. Pos.* v. 55; and *Pos. Pol.* ii. 246; iii. 483. Portrait by J. M. Wright, N.P.G.; by Dobson, R.S.

SPINOZA, b. 1632, d. 1677.

Baruch, afterwards called Benedictus de SPINOZA, the descendant of Jews driven from Portugal by the Inquisition, was born in Amsterdam on November 24th, 1632. He received a rabbinical education; but his revolt against Hebrew theology caused his excommunication from the synagogue at an early age. He gained a poor livelihood as an optician, devoted himself to philosophy, and was in correspondence with Leibniz, Huyghens, Robert Boyle, and other leading intellects of his time. He was much influenced by Descartes, from whom, however, he profoundly diverged. He was offered a chair of Philosophy by the Elector Palatine, and a pension by Louis XIV.; but he preferred independence. From John de Witt only would he accept a small allowance. His life was simple and without stain. He died at the Hague, of consumption, in his 45th year, 22nd February 1677.

Spinoza is classed by Comte with Hobbes as one of the fountain-heads of the negative movement carried on by Voltaire and the Encyclopædists in the 18th century. The work most directly operative in this direction was his politico-theological treatise, containing a systematic criticism of Bible history from the scientific standpoint, and treating miraculous records as illusions due to primitive stages of belief. Philology, historical method, and comparative mythology were all brought to bear on his subject. The treatise concludes with a noble advocacy of Toleration.

The philosophical system of Spinoza is contained in his *Ethic*. Its basis is pure Pantheism, systematically expounded. The two modes of Being, Extension and Thought, are regarded as the attributes of an infinite underlying Force, to which Spinoza gave the name of God. Attention has been concentrated, however, too exclusively on this metaphysical basis, to the neglect of the far more valuable superstructure. The two final chapters of this great work, on Man's slavery and freedom, contain principles of conduct so pure and lofty, and yet so genial and human, as to entitle Spinoza to be ranked among the founders of Positive Ethic. The blessedness of meeting hatred with love is rigorously demonstrated on purely human grounds. Asceticism and morbid sorrow for the woes of the world are strongly deprecated. To do good cheerfully (*bene agere*

et lætari) is the rule laid down. The highest life consists in loving resignation to the supreme order. The impotence of man over his own passions is slavery. From hate good can never issue ; in love of the highest, love that looks for no return, lies the only freedom.

[J. H. B.]

Sir F. Pollock : *Spinoza*. H. Höffding : *Hist. of Modern Philosophy* (Eng. trans.). G. H. Lewes : *Hist. of Philosophy*. Spinoza : *Ethic* (Eng. trans., 1883). *Phil. Pos.* v. 55. Spinoza is buried in the Nieuwe Kerk at the Hague. Portrait at Wolfenbüttel (copy, The Hague).

PASCAL (*Blaise*), b. 1623, d. 1662.

Blaise PASCAL was the son of Stephen Pascal, President of the Court of Aids, in Auvergne ; he was born in Clermont, 19th June 1623. His father was a good scholar and mathematician, and took much pains with the boy's education, confining it, however, to the study of language, and refusing to teach him mathematics, for which he showed an early inclination. Madame Périer, his elder sister, has told the story of the boy being found one day by his father making charcoal figures on the floor, which he called *rounds* and *strokes*, not knowing their usual names, but tracing their proportions. It appeared that he was inquiring into the question dealt with in the thirty-second proposition of Euclid's first book : the equality of the three angles of a triangle to two right angles. The story is remarkable enough without the air of miracle with which it is sometimes surrounded, as though he had reasoned out all the previous propositions without help. It does not even appear certain that he had solved this one. No further bar was opposed to his mathematical training. By this time his father had removed to Paris, and was in contact with Roberval and other men of scientific eminence. At the age of sixteen, the boy had written a treatise on *Conic Sections* which attracted the notice of Descartes. He was nineteen when he invented his calculating machine, of which he had more than fifty models executed before its completion ; the purpose of it being to assist his father in the calculations involved in official work connected with the government of Normandy. For the next five years he gave himself energetically to scientific research. In 1647, being then twenty-four years old, he published a sketch of his experiments on the Vacuum ; the full account of which did not appear till after his death. He describes the vacuum produced by Torricelli in 1643 in a tube filled with mercury. He adds the account of his own experiment with a tube 40 feet long, in which a similar vacuum was produced ; the pressure of the air supporting a column of water, of which the length was to that of the column of mercury in the inverse proportion of their specific gravities. In the following year he made, through his brother-in-law, the crucial experiment of comparing mercurial barometers at the summit and at the foot of the Puy-de-Dôme ; experiments verified

by others of his own on the tower of Saint Jacques. His treatise on the equilibrium of fluids, published in 1663, shows a clear understanding of hydraulic pressure.

In 1654 his health, which for some years had been failing, received a shock from a carriage accident ; and this led to a moral crisis, diverting him from science and philosophy to ascetic pietism, interrupted only by his controversy with the Jesuits (1656), embodied in the *Provincial Letters*, and by his challenge to mathematicians as to the cycloid in 1658. He had long projected a philosophical work on man and his destiny. Of this isolated fragments alone were written, and are known to us as his *Thoughts*. Coloured as these are by morbid and egotistic mysticism, they reveal a mind capable, under healthier conditions, of very great results. To one very remarkable aphorism which occurs in the *Traité sur le Vide*, Comte has drawn special attention : "The whole series of human generations during the course of ages should be regarded as one man, ever living and ever learning." He cites also with special approval the remarks on the inevitable imperfection of social classification, and on the inherent weakness of the arguments drawn from natural theology. [J. H. B.]

Viscount St. Cyres : *Life*. H. Höffding : *Hist. of Modern Philosophy* (Eng. trans.), L. Lévy-Bruhl : *Hist. of Modern Philosophy in France*. C. A. Sainte-Beuve : *Port Royal*. *Phil. Pos.* iv. p. 172, v. 54, 55. *Pos. Pol.* iv. 27. The *Pensées* of Pascal are in the Positivist Library. His remains now lie in St. Etienne du Mont, Paris. Portrait, National Library, Paris.

GIORDANO BRUNO, b. abt. 1550, d. 1600.

This brilliant enthusiast was born at Nola, near Naples. Little is known of his early life. He became a Dominican to gain time and opportunity for study. But he soon broke loose from the Aristotelian and Thomist traditions of his Order, and ranged himself with men like Campanella, who were reviving the study of Platonism, and, through Platonism, found the way to the yet older Pantheism of the early Greek thinkers.

About 1580 he left Italy for Geneva. Calvin had been dead sixteen years ; but Beza inherited his position and spirit, and was imprisoning such heretics as Henry Stephanus, and banishing anti-Aristotelians like Ramus and Arminius. Bruno sped thence to Lyons, and afterwards to Toulouse. He found little sympathy in either place : learning flourished, but free thought was denounced. France was in the throes of her religious wars.

At last he reached Paris, where he was protected by Henry III., and by Filesac, the Rector of the University. He remained there for a year, teaching the Lullian system. Then he went to London, where he wrote his *Spaccio della bestia trionfante*, an allegorical attack on Ptolemaic astronomy, and, through this, at scholastic dogmatism. It was dedicated to Sir Philip Sidney, for whom he felt unbounded

reverence. While in England he held a controversial discussion at Oxford against Aristotle, and in favour of Copernicus; and shortly afterwards another in Paris, to which he returned in 1586. Thence he went successively to the universities of Marburg, Wittenberg, Frankfort, and Prague, delivering his enthusiastic utterances on the new birth of science and the downfall of Aristotelian superstition. At last he ventured into Italy. He remained for some years unmolested; but he was ultimately arrested at Venice by the Inquisition, and in 1598 was transferred to Rome. Refusing to recant his philosophical and scientific heresies, he was burnt in the Campo di Fiore, 17th February 1600.

Bruno was truly—what he called himself in his letter to the University of Oxford,—*dormitantium animarum excubitor*, the awakener of those that sleep. He revelled in the new life of thought resulting from the discovery that the universe was no machine of concentric spheres with the earth for centre, but an infinite space, sown with innumerable stars. An informing soul pervaded it, moulding every part to the degree of life of which it was capable. This is the central thought of his two chief Italian works, *Causa, principio, ed uno* and *L'infinito universo e Mondi*, and of his great Latin poem, written in Lucretian style, *De Immenso et innumerabilibus*. This last contains a glowing eulogy of Copernicus, and describes the inspiring influence of his book on Bruno's early years. How incompatible such doctrines were with the discipline of the Church is obvious. Bruno was chief among the forerunners of the great intellectual revolution to be effected in the 17th century by Descartes and Spinoza. [J. H. B.]

H. Höffding: *Hist. of Modern Philosophy* (Eng. trans.). Bruno's works, which had become very rare, were republished towards the close of the nineteenth century; the Italian in Göttingen, the Latin in Italy. With the latter are included some never before printed. At Rome his statue now stands in the Piazzo Campo di Fiore where he was burnt.

LOCKE (*John*), b. 1632, d. 1704.

Few thinkers have been more widely read than LOCKE. He was born August 29, 1632, at Wrington, in Somersetshire. His father had served under the Parliament in the wars of the Commonwealth. He was educated first at Westminster, then at Oxford, where he studied medicine, attracting the attention of the great physician Sydenham. His acute diagnosis of a disease from which Lord Shaftesbury was suffering gained him the friendship of that nobleman. Weak health, and the displeasure of the Government at his liberal opinions, kept him away from England till after the Revolution of 1688. He resided partly in the south of France, but principally in Holland, working for many years at his *Essay concerning Human Understanding*, published in 1690. On his return to England he gained the friendship of Newton, with whom he maintained a long correspondence. Besides his principal work, his *Essay on*

Toleration, written while in Holland, his treatises on *Government* and on *Education* are to be noted.

The *Essay concerning Human Understanding* consists of four books. The first is a refutation of the view that ideas are innate in the mind. Locke shows that if this were so, there would be propositions in which all agree. Some such had been brought forward by the supporters of the theory, as that "It was impossible for the same thing to be and not to be at the same time." But an examination of the minds of children and savages shows that such propositions have no existence for them, their very terms not being intelligible. The second book contains his analysis of ideas. All are derived from experience; some are derived from sensation; others from the reflection of the mind on its operations. Distinguishing them into simple and complex, he reduces the first to a few simple categories, as extension, solidity, mobility, derived by the senses from body; perceptivity, the power of perception; motivity, the power of moving, derived by reflection from our minds; and existence, duration, number, springing from both sources.

The third book deals with language, and contains vigorous refutations of the metaphysical doctrine of essences, which he shows to be simply artificial abstractions, made for human convenience.

The fourth book deals with knowledge and demonstration. Perhaps the most noticeable point in it is his disregard of the scholastic syllogism, which he shows to be not the process actually followed by those who make a sound use of their reasoning faculties. "Tell a country gentlewoman that the wind is south-west, and the weather lowering and like to rain, and she will easily understand it is not safe for her to go abroad thin clad in such a day after a fever. She clearly sees the probable connection of all these, viz., south-west wind and clouds, rain, wetting, taking cold, relapse, and danger of death, without tying them together in those artificial and cumbersome fetters of several syllogisms that clog and hinder the mind, which proceeds from one part to another quicker and clearer without them." This direct resort to observation of Nature and reality is characteristic of Locke's method throughout his treatise.

[J. H. B.]

H. Höffding: *Hist. of Modern Philosophy* (Eng. trans.). G. H. Lewes: *Hist. of Philosophy*. J. S. Mill: *Logic*, bk. i. ch. vi. Locke is buried in High Laver Churchyard. Portrait by Brownover, N.P.G.; by Kneller, Christ Ch. Oxf.

MALEBRANCHE (*Nicolas*), b. 1638, d. 1715.

Nicolas MALEBRANCHE was born in Paris in 1638. He led the life of a student, and was occupied with the study of language and of biblical literature till the reading of Descartes' treatise on *Man* turned him to philosophy. He spent ten years in the study of Descartes, of whom he was regarded as the principal disciple. His treatise on the *Search for Truth*, in six books, was the result of his

labours. One of the problems discussed by Malebranche in this work is the mode of action of mind upon matter. The essence of matter being extension, of mind thought, how were things so distinct brought into connection ? It had been suggested that effluent particles passed from bodies through the organs of sense to the mind. But such particles, having extension, would impede each other in their passage ; and, moreover, would convey no intimation of the distance of objects. Nor can it be said that the mind produces its own ideas of outward objects ; nor, again, that these ideas were created with us. The solution of Malebranche is that we see all things in God ; God being the region of all spirit, as space is the region of body. To God all objects are eternally present ; the contact of spirit with God is thus the mode by which spirit perceives matter.

The last of the six books, containing his method of investigation, is the most interesting and useful. It is founded on the Cartesian philosophy, insisting first on the rule of clearness of conception ; secondly, of arrangement of problems in the order of their increasing complexity. The importance of mathematics as a propædeutic is urged with great force. [J. H. B.]

H. Höffding : *Hist. of Modern Philosophy* (Eng. trans.). L. Lévy-Bruhl : *Hist. of Mod. Phil. in France.*

VAUVENARGUES (*Marquis de*), b. 1715, d. 1747.

Luc de Clapiers, Marquis de VAUVENARGUES, was born at Aix, in Provence, entered the army at 18, and served in Italy and Germany. Failing health obliged him to retire after nine years' service, and he passed the few remaining years of his life in study. Voltaire, whose acquaintance he made at this time, spoke of his character and powers with the warmest admiration. He died in 1747, at the early age of 32.

The short philosophical career of Vauvenargues was devoted to the study of man's moral nature, and its results are contained in a series of more or less isolated thoughts, which were to serve as materials for a systematic work never completed. Their distinctive feature is the paramount importance of emotion in the formation not merely of character but of thought. The subordination of the Intellect to the Heart, one of the corner-stones of Comte's ethical system, is clearly indicated in the celebrated maxim of Vauvenargues, *Toutes les grandes pensées viennent du cœur.* A few quotations will best show the character of these thoughts :—

> " The mind is the eye of the soul, not its strength. That lies in the heart—that is, in the passions. The most enlightened reason gives neither action nor will. Does good sight give the power of walking ? Must there not be feet, and the will and the power to move them ? "

"Reason and feeling advise and help each other in turn. Whoever consults one only and rejects the other, throws away half the help given for conduct. From our passions come the best features of our intellect."

"If men had not loved glory, they would not have had either mind enough or virtue enough to deserve it. Man's passions have taught him reason."

We must accustom ourselves, Vauvenargues thought, to a mixture of good and bad in human nature, and be contented if the selfish element can, by wise government, be made to serve social good. If men are always to be hindered from doing themselves harm, they run the risk of slavery, which is the worst harm of all. Great abuses are part of the order of man's nature, and cannot be wholly eradicated.

"We have no right to reduce to misery those whom we cannot raise to virtue. We cannot be just if we are not humane."

[J. H. B.]

J. Morley: *Critical Miscellanies*, vol. ii. Of the *Maxims* of Vauvenargues there are many editions and several English translations. For Comte's appreciation of him, see *Positive Polity*, i. Ded. XXXVI, XLI, and iii. 504. The *Maxims* finds a place in the Positivist Library.

MADAME DE LAMBERT, b. 1647, d. 1733.

Anne Thérèse de Marguenat de Courcelles, afterwards Marquise de LAMBERT, was born in Paris, the daughter of Etienne de Marguenat, Master in the Exchequer. She married the Marquis de Lambert, a high military official under Louis XIV., who left her a widow with two children in 1686. Her salon in Paris was much frequented by Fontenelle and other celebrities, and was one of the few from which play was excluded. She died, July 12, 1733, in her 86th year, much respected and loved.

Her two best known works, *A Mother's Counsel to a Son*, and *To a Daughter*, which have a place in the Positivist Library, are full of delicate observations of human nature, and of womanly wisdom based almost exclusively on human affections and relations. The established cult is briefly mentioned, and respect for it inculcated; but it holds a secondary place. The social virtues, the arts of pleasing without servility, forgetfulness of self, the prominence to be given to the qualities of others, the interest to be felt in what interests them, are beautifully depicted. "A courteous person never finds the time to speak of self." Yet the counsels she gave her son were neither effeminate nor overstrained. On manliness of character, on self-respect and dignity, on honourable zeal for distinction, she set high value; but the most vigorous and active life should have time for solitary thought; and chivalrous respect for women, humanity towards the suffering, and magnanimous forgetfulness of injuries should permeate the whole. [J. H. B.]

DIDEROT (*Denis*), b. 1713, d. 1784.

Denis DIDEROT was born at Langres, in Champagne, in October 1713, where his father and his forefathers had been established as working cutlers for two centuries. He was brought up for a time by the Jesuits, like so many other eminent Frenchmen, and for a time wished to be a priest. He soon found his way, however, to Paris, where his true vocation at once revealed itself. Plunging into the world of letters, and living by them as best he could, he became the leader of the band of thinkers and writers who occupied themselves in the work of social destruction and renovation, with a zeal unparalleled in the history of humanity. Of the army of critics and destroyers, Voltaire was the acknowledged leader. But Diderot's genius was essentially constructive, though the time for permanent construction had not come. With happy instinct he hit upon the expedient of an Encyclopædia, in which men of different capacities and temperaments, practical as well as theoretical, could take part, and which could disseminate positive knowledge of every kind, while sweeping theological obstructions aside. D'Alembert was associated with him in the first years of the enterprise, to which he wrote the Introduction. Montesquieu, Voltaire, Rousseau, Marmontel, Quesnai, d'Holbach, Des Brosses, Haller, Turgot, Condorcet, were among the contributors. The first volume was published in 1751. Suppressed for a time after the issue, in 1752, of the second volume, the publication was continued, amidst the execration of the clergy, till 1759, when D'Alembert's article on Geneva brought a second decree of suppression. D'Alembert left the enterprise, and Diderot superintended it alone till the close.

No single work of Diderot represents adequately his synthetic and sympathetic genius. Comte speaks of him as the most encyclopædic mind since Aristotle. He selected four of his works for the synthetic division of his Positive Library: the *Letter on the Blind*, *Letter on the Deaf*, *Thoughts on the Interpretation of Nature*, and *The Theory of Beauty*. The first two present a brilliant and subtle analysis of the way in which man's physical organisation, especially the organisation of his senses, has moulded his social and moral being. The *Interpretation of Nature* marks the transition from the objective synthesis instituted by Descartes to the subjective synthesis of Positivism. Instructed himself in the high mathematical analysis of his time, he yet saw clearly that the future progress of man's intellect would not consist in a series of algebraical deductions, but in direct recurrence to the facts of the world and of human life. It was a bold prophecy for the contemporary of Euler, D'Alembert, and Lagrange that in a hundred years there would not be three geometers of similar rank left in Europe; that intellectual energies would have taken another channel. Within two generations the chemistry of Lavoisier, the biology of Bichat and the sociology of Comte were to justify the prevision.

His *Theory of the Beautiful*, founded with keen insight on the idea of the relation of parts to a whole, illustrates the poetic side of his genius, which was indeed as open to every aspect of art as his heart was responsive to every influence of love and friendship. His uncongenial marriage, and irregular but faithful attachment to Mademoiselle de Voland, are facts of which a just judge, deciding by the standard of life then prevalent, will be slow to use harsh words. Perhaps no man of genius has been so richly endowed with generous sympathies, or so free from envious or self-seeking taint.

[J. H. B.]

J. Morley : *Diderot and the Encyclopædists.* H. Höffding : *Hist. of Modern Philosophy* (Eng. trans.) L. Lévy-Bruhl : *Hist. of Mod. Phil. in France. Pos. Pol.* iii. 498-504 and 513-16. Diderot was buried in St. Roch, Paris. Portrait by Vanloo ; bust by Houdon, L. ; bust by Pigalle, L.

DUCLOS (*Charles Pinot*), b. 1704, d. 1772.

DUCLOS was born at Dinan, in Brittany. He went when young to Paris, entered the field of literature, and wrote several novels which were much read at the time. In 1747 he became a member of the Academy, and in 1755 he was appointed secretary. Five years previously Louis XV. had appointed him Historiographer, in succession to Voltaire, who had gone to Berlin. Among his contemporaries he was celebrated for independence of character, sincerity, and brilliant wit. "Of all men whom I know," said D'Alembert, "Duclos is the one who has the greatest amount of wit in a given time." Of his various works the *Considérations sur les Mœurs*, which has a place in the Positivist Library, is the most important. It is full of those sound and just observations of character which form the material of Positive Ethic. Repudiating as radically vicious the theory of the corruption of human nature, he remarks that, in order to discern and to correct men's errors, it is needful first to love humanity, so as to be just without harshness and indulgent without weakness. One of his most striking contrasts is that between the social man and the good-natured man ; the one a true citizen, the other caring only to please, and indifferent to duty : *L'homme aimable est souvent l'homme le moins digne d'être aimé.* Nor less striking is his definition of virtue : *an effort over self in the interest of others.* [J. H. B.]

Duclos was buried in St. Germain L'Auxerrois, Paris.

CABANIS (*Pierre Jean Georges*), b. 1757, d. 1808.

The father of CABANIS was a cultivator of Cosnac, near Brives, in the south of France, much esteemed by Turgot. The son, ardent and impatient of provincial teachers, was sent to Paris at fourteen. At sixteen he became private secretary to a Polish noble, and in

1773 was witness to the first partition of Poland. Returning to Paris, he studied medicine under Dubreuil for six years. He made at this time the acquaintance of the widow of Helvetius, whom he regarded as his second mother. At her house he came into contact with the great pioneers of the Revolution—Diderot, d'Holbach, d'Alembert, Franklin, Jefferson, Condorcet. Of the last he was an intimate friend, and ultimately married Madame Condorcet's sister. He was Mirabeau's physician, and filled afterwards important posts under the Convention. He retired to Meulan in 1807, and died at Rueil the next year. His character was upright and noble. His last years were spent in acts of kindness to those who needed his aid or medical skill.

His great work, published in 1802, is a series of memoirs on the connection between the *Moral and Physical Nature of Man*. Satisfactory treatment of such a subject presupposes a grasp of the two distinct sciences of Biology and Sociology; the first of which had hardly arisen, the latter was still below the horizon. Nevertheless, to Cabanis belongs the honour of first conceiving this great problem of transcendental biology, though he, like Gall, was unable to take due account of its sociological factor.

Sound views, he says, had been taken by Hippocrates and Aristotle, and subsequently by English thinkers from Bacon to Locke, of the dependence of our ideas on sensation. These men, if not all physicians, had a practical knowledge of medicine. But Condillac and others, devoid of this knowledge, had exaggerated Locke's view, and made sensation account for the whole mental and moral structure of man.

But this notion of man, as a statue endowed with sensation, will carry us, said Cabanis, but a very little way. An impression made on an organ of sense affects the whole organism or many parts of it at once; and the resulting reaction differs in each case. This was recognised by the physicians of antiquity, who classed men under four temperaments—sanguine, bilious, melancholic, or phlegmatic. Our completer knowledge should enable us to analyse these vague conceptions, and assign the organs or systems of organs—vascular, nervous, muscular, etc.—which preponderate in each case. Regarding the brain as the organ that transforms impressions into thoughts and impulses, as the digestive organs transform food into vital tissue, we have to examine the action exerted on it by other organs and by external conditions.

Cabanis proceeds to examine successively, with much detail, the influence on ideas and desires of age, of sex, of physical temperament, and of climate. Finally, he deals directly with the functions of sensation, desire, and will, and indicates their reactions on organic life. The vagueness of this part of his work—full as it is throughout of luminous suggestions—proves the importance of the step taken shortly afterwards by Gall, in hypothetically connecting moral and intellectual functions with distinct organs. Cabanis, on the other

hand, taking account of the whole organism, and not of the brain only, supplements some of Gall's deficiencies. [J. H. B.]

G. Poyer: *Cabanis.* Cabanis: *Rapports du physique et du moral de l'homme*, 1802 (in the Positivist Library). *Phil. Pos.* iv. 49. *Pos. Pol.* i. 541-3, ii. 356, iii. 529. Cabanis was buried in the Panthéon, Paris, but his heart was placed in his wife's grave at Auteuil. Portrait, engr. by Dejuinne; bust, Faculté de Médicine, Paris.

GEORGES LEROY, b. 1723, d. 1789.

Charles GEORGES LEROY was son of the ranger of the royal parks of Versailles and Marly, and succeeded his father in that post. A professional sportsman, and a thorough master of forestry and the other industrial arts connected with his work, he gave his leisure to literature and philosophy; became intimate with the illustrious thinkers of his time, gathered round d'Holbach and his family at Grandval, and contributed several articles to the *Encyclopædia*. His principal work is his series of *Letters on Animals*, published at intervals in various journals, between 1762 and 1781, and finally collected into a volume dedicated to Madame d'Angivilliers, one of the most cultivated women of the time. These letters contain the first explicit essay of Comparative Psychology. They exhibit the moral and mental nature of animals as differing in degree only, and not in essence, from that of man. Availing himself of his experience as a sportsman and naturalist, Leroy selects a few well-known animals—the wolf, the fox, and the stag—and portrays with vivid accuracy their daily life, the workings of their mental faculties and of their passions; the close observation of facts, the adaptation of means to ends, and the skill gained by experience, resulting from the difficulty of obtaining sustenance, and from the dangerous proximity of man. The account of the fox, in particular, of the combination of wit and courage shown in procuring food for his offspring, might make some of his hunters hesitate.

Leroy was one of the first explorers on the path trod afterwards with such success by Gall. To determine the problem which of our emotions and propensities are innate in our structure, and which are the result of the cerebral complications of the social state in which man has lived for many thousand years, no better criterion can be devised than careful observation of the higher vertebrates—not merely of those like the dog, who are brought into close intimacy with him—but of those who still live their elementary tribal life in such independence as man's proximity allows. [J. H. B.]

Leroy: *Letters on Animals*, in the Positivist Library. The English translation (1870) was made by Mrs. Congreve. *Pos. Pol.* i. 544, iii. 504.

FRANCIS BACON (*Lord Chancellor*), b. 1561, d. 1626.

Francis, commonly called Lord, BACON, Viscount St. Albans, second son of Sir Nicholas Bacon, Lord Keeper of the Great Seal for twenty years under Queen Elizabeth, was born in London,

at York House, in the Strand, 22nd January 1561. A boy of lively and precocious wit, he entered Trinity College, Cambridge, in his 13th year, and, before he was 16, had formed strong convictions of the sterility of Aristotelian philosophy as then taught in universities. On leaving Cambridge, he entered Gray's Inn as a student of law; and shortly after travelled in France, making careful political observations, embodied in his work on the *State of Europe*, written in his 20th year. Returning to London, he was called to the bar in 1582, and gained considerable practice, being appointed in 1589 counsel extraordinary to the Queen. In 1591 he was elected member for Middlesex. His further advance in Elizabeth's reign was slow, perhaps owing to his friendship for Essex, and to the disfavour of the Cecils, who spoke of him as a speculator. Under James I. his prospects improved. In 1607 he was made Solicitor-General, in 1613 Attorney-General, in 1617 Lord Keeper of the Great Seal, and in the following year Lord Chancellor.

Throughout all these years he was pursuing, so far as public life permitted, the project of his youth—the renovation of philosophy on the basis of modern science. The *Novum Organum* was not published till 1620; but thirteen years previously the *Cogitata et Visa*, the first draft of his great work, had been given to the world; and this had been prepared by the still earlier works, *Filum Labyrinthi*, and *Partus Temporis Maximus*.

On the lamentable deviations of Bacon's later life, caused by embarrassments in which pride and pomp involved him, and from which he sought dishonourable means of escape, it is not needful to dwell at length here. He was stript of his offices, heavily fined, banished from the court, and for a short time imprisoned in the Tower. He continued to devote himself to scientific pursuits for the remainder of his life, which was shortened by an accidental explosion in his laboratory. He died in Lord Arundel's house at Highgate, on the 9th of April 1626.

Bacon is associated by Comte with Descartes and Galileo, as one of the three founders of the Positive Philosophy. The conflict between Science and Metaphysics had been already begun by the astronomical discoveries of the 16th century. The next step was to show that scientific observations of Nature led to a constructive doctrine applicable to the conduct of human life, and contrasting, in the richness of its results, with the sterility of metaphysics. The *Novum Organum* begins by eliminating four sources of error, called by Bacon *Idols*:—(1.) The errors due to the inherent weakness of man's understanding, its incapacity for resisting sensuous impressions or impulses of passion; its readiness to suppose far more simplicity in surrounding nature than really exists; its want of patience and sobriety. These things he called *Idols of the Tribe*. (2.) The errors originating in the peculiar constitution and temper of each individual. These he called *Idols of the Den*. (3.) The errors springing from inaccurate use of language—*the Idols of the*

Market. (4.) The errors brought about by the prejudice of philosophic systems: *the Idols of the Theatre.*

The second part of the *Organum* deals with the Interpretation of Nature. The object is to detect what Bacon calls *Forms*, corresponding very nearly to what we know as Laws of Nature, *i.e.* uniform actions exhibited in widely different objects. "A nature being given," he says, "we must first present to the understanding all the known instances which agree in the same nature, though the subject-matter be considerably diversified." These must be contrasted with instances which do not admit of the given nature. Most important of all are what he terms Prerogative Instances, of which he defines twenty-seven classes. Amongst them may be noted, *Solitary* instances, those showing the same quality in bodies otherwise different, or some difference in bodies otherwise identical; *Migratory* instances, the gradual transition from a given state to its opposite; *Singular* instances, objects apparently exceptional, and standing alone in Nature; instances of *Power*, *i.e.* the study of the principles underlying man's practical arts; instances of the *Road*, the study of the gradual and continuous motions of Nature, as in the germination and growth of seeds, the incubation of eggs; finally, instances of the *Cross*, otherwise called decisive, or judicial —the metaphor being borrowed from the crosses erected where two roads meet: when two explanations of a fact are equally possible, find a fact that can only be explained by one of them.

This will illustrate sufficiently the method of the *Organum*. It has to be admitted that, great as the stimulus thus given to organised observation and experiment undoubtedly was, in Bacon's own hands the method was not productive of a single discovery. In one most important respect it was seriously defective. He laid it down as the only true path to discovery, that investigation should proceed from the lowest, *i.e.* the most special principles, to those of a more general kind, and thence upwards to the highest generalisations; and he explicitly condemned the plan of rising from lower principles to higher, and thence descending deductively, to principles of an intermediate kind (*Novum Organum*, i. 104). In other words, his plan for investigating Nature ignored the deductive method. This error is traceable to his ignorance of mathematics, which in the hands of his contemporaries, Galileo, Vieta, and Harriott, was effecting such important results, and was preparing the way for the momentous discoveries of Descartes, Leibniz, and Newton. In part also, the sterility of Bacon in Induction must be attributed to his want of single-mindedness in the pursuit of Truth. His philosophical career was clogged by his political and social ambition, and in this respect contrasts strongly with the strenuous and concentrated devotion presented by the life of Descartes.

It must not be forgotten, however, that in one important respect Descartes is surpassed by Bacon. Descartes applied the Positive method to the physical sciences, and even to biology, far more

completely than Bacon ; but he left to metaphysics all that related to the social and moral life of man. This, on the contrary, Bacon expressly included in his programme. "Some may raise the question," he says, "whether Natural Philosophy alone is to be perfected according to our method, or the other sciences also, such as Logic, Ethic, Politic. We certainly intend to comprehend them all ; and as common logic, which regulates matters by syllogisms, is applied not only to natural but also to every other science, so our Inductive Method likewise comprehends them all. For we form a History and Tables of Invention for anger, fear, shame, and the like, and also for examples in civil life, and the mental operations of memory, composition, judgment and the rest, as well as for heat and cold, light, vegetation, and the like." (*Novum Organum*, i. 127.) Though this part of the programme, like so much else, remained unaccomplished, yet his *Essays*, published early in his career (1596), had shown his subtle insight into character and his grasp of human life in all its phases. Bacon's words were not without influence on the long line of British thinkers, from Hobbes to Hume, who applied inductive methods to the study of human nature. [J. H. B.]

H. Höffding : *Hist. of Modern Philosophy* (Eng. trans.). G. H. Lewes : *Hist. of Philosophy*. Bacon's *Philosophical Works*, ed. by J. M. Robertson. *Phil. Pos.* i. 1, 2, vi. 56. *Pos. Pol.* iii. 483. The *Novum Organum* is in the Positivist Library. Bacon is buried in St. Michael's Church, St. Albans. Portrait by Van Somer, R.S. and N.P.G. Statue at tomb.

GROTIUS (*Huig van Groot*), b. 1583, d. 1645.

Hugo GROTIUS was born at Delft, 10th April 1583. His father, John van Groot, was burgomaster of that city, and also curator of the University of Leyden, where Hugo was educated, one of his tutors being Joseph Scaliger. In 1598 he accompanied the Dutch embassy to Paris, and there made the friendship of De Thou. In 1607 he was made Advocate-general for the Treasury of Holland and Zealand ; and in 1613 he became Pensionary of Rotterdam. His friendship with Barneveldt led to his imprisonment in 1619. After two years his wife contrived his escape, and he took refuge in France. Here in 1623 he wrote his great work on international law. After a fruitless attempt to re-establish himself in Holland, he accepted, in 1634, the post of ambassador to Queen Christina of Sweden at the French court. In 1645 he went for a short time to Stockholm ; finding the climate unsuitable, he sailed thence for Lübeck ; but was forced by a violent storm to land near Dantzic, in a state of great prostration, and died a few days afterwards on the 28th August at Rostock. His body was taken to Delft, where a monument has been erected in his honour.

Grotius wrote many historical works, on the history of his own country, on the origin of American tribes, on the Goths, Lombards, and Vandals. He was an accomplished poet and a learned theologian. During his imprisonment he wrote in Dutch verse, afterwards

translated into Latin, his treatise on the truth of Christianity. It was a plea for Tolerance, dwelling on the doctrines in which Catholics and the various sects of Protestants agreed, and passing lightly over the rest.

But his great work is his treatise *De Jure Belli et Pacis*, the Law of War and of Peace, the first great attempt to lay down principles of international law. This work was written in 1625. But a preliminary work, *De Jure Prædæ*, the Law of Prizes, had been written by him twenty years previously, though, till lately, it remained unpublished. The endeavour of Grotius, as Hallam states it, was "the ascertainment of laws binding on independent communities in their mutual relations, whether of war or peace." The motive for the work, as stated by himself, was "the licence of fighting which he saw in the whole Christian world, at which even barbarians might blush; wars begun on trifling pretexts or none at all, and carried on without any reverence for any divine or human law, as if that one declaration of war let loose every crime. There were nevertheless certain restraining influences, some derived from the constitution of human nature, in which there was implanted a social instinct, an innate propensity towards good; others again were enshrined in the immemorial and universal usage of nations. Of these last the respect for ambassadors or for a flag of truce, the condemnation of such acts in war as the poisoning of an enemy's wells, or the violation of women, are examples. To these may be added duties which the noblest warriors will observe, as clemency to a subject foe; respect for the private property of an invaded country, and other limitations partially, though not universally, admitted. The purpose which Grotius had in view led him into wide digressions for the establishment of general principles of jurisprudence, connected with the rights of property and dominion, contracts, government, and the like questions.

Hobbes during this century was engaged in maintaining the fundamental principle on which temporal government rests: in showing, that is, that in the last resort it must depend on physical force. But temporal government is modified by spiritual forces. And the instincts and usages adduced by Grotius in restraint of the evils of war belong to the sphere of spiritual government, which is not less necessary than the temporal to the maintenance of the social state. [J. H. B.]

H. Höffding: *Hist. of Modern Philosophy* (Eng. trans.). *De Jure Belli et Pacis*, Eng. trans. by Dr. Whewell, 3 vols., 1853. Wheaton: *Hist. of International Law*. Sir H. Maine: *International Law*. Grotius is buried in the Nieuwe Kerk, Delft. Portrait by Mierevelt.

CUJAS (*Jacques Cujas*). b. abt. 1520, d. 1590.

Jacques CUJAS, often known by the Latinised form Cujacius, was born in Toulouse, where his father followed the trade of a tanner. He showed early zeal for classical pursuits, and finally

devoted all his energies to the study of law. In 1549 he began to lecture publicly on the *Institutes* of Justinian; and with such distinction that the leading men of the province sent their sons to study under him. Failing to obtain the professorship of Roman Law in his native city, he accepted in 1555 that of Bourges, on the invitation of Margaret of Valois; but later removed to Valence, where his lectures were attended by eminent men from every part of Europe, amongst them by Joseph Scaliger and the historian de Thou. In 1575 he returned to Bourges, and, with the exception of a year in Paris, remained there until his death, October 4, 1590.

The characteristic of Cujas was extreme lucidity of teaching and recurrence to original sources of information. His wide scholarship and archæological research placed him far above other teachers of his time. With modern litigation he concerned himself but little. His real claim is to have been the philosophic historian and expounder of the Roman system of jurisprudence; and his is the greatest name in the long struggle of the Civil Law with the Feudal Law.

[J. H. B.]

FONTENELLE, b. 1657, d. 1757.

Bernard le Bovier de FONTENELLE was born at Rouen, 11th February 1657. His mother was Corneille's sister; his father a barrister of some distinction. Brought up at the Jesuit College in his native city, he showed as a boy great literary ability. Nominally a student of law, he was absorbed in the acquisition of every kind of knowledge. In 1691, after four refusals, he was admitted to the Academy of Sciences, of which he was appointed Secretary in 1699, retaining his post for forty-two years. He died in Paris within a few weeks of completing his hundredth year, remarking in his last moments that he had no pain; but felt a certain difficulty in continuing to live. His unbroken health throughout life contrasted remarkably with the extreme delicacy of his childhood. His temper was singularly placid and even; he was genial and bright, but it is said of him that he never laughed or wept.

Comte describes Fontenelle as a genuine philosopher who never claimed the title. In the beginning of the eighteenth century, when the movement of intellectual emancipation, no longer limited to a few thinkers, was diffusing itself through the public mind, he occupies a considerable place. One of the controversies of the period turned upon the alleged inferiority of modern literature as compared with that of antiquity. Against Boileau and others who supported this thesis, Fontenelle, with Perrault, contended strongly. From the purely æsthetic standpoint the issue might be doubtful; but Fontenelle enlarged the controversy by dwelling on the wider insight given by scientific discovery, and by thus enforcing the conception, then almost new to the world, of human progress.

The work by which Fontenelle is best known, and which, together with his *Notices of Men of Science*, has a place in the Positivist Library, is his *Plurality of Worlds* ; a series of dialogues on popular astronomy based on the Cartesian philosophy, the charm and grace of which would redeem what is transient in their scientific basis. But apart from this, the work has historic value as the best monument of a theory which played so great a part in the development of modern thought. [J. H. B.]

L. Lévy-Bruhl : *Hist. of Mod. Phil. in France.* Fontenelle is buried in St. Roch, Paris.

MAUPERTUIS, b. 1698, d. 1759.

Pierre Louis Moreau de MAUPERTUIS was born at St. Malo, 17th July 1698. He became a soldier ; but, after reaching the rank of captain of dragoons, he left the army and gave himself to mathematical study. In 1723 he was admitted a member of the Academy of Sciences. One of the most prominent subjects of discussion at that time was the figure of the earth, believed, but not yet proved, to be a sphere flattened at the poles. For the purpose of verifying this hypothesis it was important to take the direct measurement of a degree in different parts of the earth's surface. Maupertuis was associated with Clairaut and Celsius in conducting this measurement in Arctic regions. The valley of the river Tornea, at the northern end of the Gulf of Bothnia, was chosen for this purpose ; and it was found that a degree of the meridian in the latitude of 66° exceeded that in the latitude of Paris by 512 toises (about two-thirds of a mile) ; a result helping to establish the conjecture that the earth was an oblate spheroid.

Maupertuis was a strenuous advocate of the Newtonian, as against the Cartesian, view of the solar system. In 1745 he was invited by Frederick the Great to accept the Presidency of the Academy of Berlin. He lived in that city for many years ; but the latter part of his residence there was embittered by controversy, and he finally retired to Basle, where he died, 27th June 1759, in the house of one of John Bernoulli's sons.

The controversy in which he was engaged related to what was called by him the Principle of Least Action, which he stated thus : —The quantity of action necessary to produce a change in the motion of bodies is always a minimum. His other works on Moral Philosophy, on the Progress of Science, and on the Origin of Language, showed that his mind ranged beyond the specialities of mathematics ; and he thus finds a place among philosophers rather than among men of science. [J. H. B.]

He is buried at Soleure, Switzerland (Cenotaph, St. Roch, Paris).

VICO, b. 1668, d. 1744.

Giovanni Battista VICO was the son of a bookseller of Naples. He was brought up in a Jesuit college, but allowed free play in his own reading. He studied philosophy, language, jurisprudence; the last to such purpose that at the age of sixteen he defended an action brought against his father. The Bishop of Ischia engaged him as a private tutor to his nephew; but after a short time he returned to Naples, where, in 1697, he became Professor of Rhetoric. His great work, the *Scienza Nuova*, was published in 1725. In 1735 he became historiographer to the King at Naples. Vico died 20th January 1744.

Vico's New Science was nothing less than the application of Baconian principles to the phenomena of human society. He grasped with extraordinary vigour the conception that, amidst all the diversities of customs, language, and events of different nations, there were underlying uniformities; and that by disengaging these it was possible to form an ideal eternal history, representing the laws of evolution of the human race. To find these general laws guiding the destiny of nations was the object of his work. He saw clearly that in the early state of nations development was unconscious. The play of natural passions brought about consequences of which no one was aware. Many centuries must pass before philosophy could appear on the scene. The principles of growth must be sought in language, in fundamental institutions, in early poetry. Vico found a mental language common to all nations. There was a universal tendency amongst men ignorant of the natural causes of things to attribute to them the passions of their own nature: as in saying that the Magnet loves Iron. "The sublimest work of poetry," he says again, "is to give sense and feeling to inanimate things. This children do: and in the childhood of the world men were all poets in this way." It was impossible to describe more clearly the primitive fetichism with which man's thoughts on Nature began. On this basis Vico's theory of historical evolution proceeded. "Uniform ideas," he says, "arising among nations widely separated in space and time, and cut off from all contact with each other, must have some common ground-work of truth." Among all nations and tribes we find the three institutions of Religion, Marriage, Burial. He illustrates this with copious reference to ancient literature and modern travel. In the ancient laws of Rome, and in the poems of Homer, he found a treasure of what he called Poetical Wisdom; that is, of Thought working in the manner natural to primitive civilisations, by symbols and images inspired by emotion and passion, rather than by signs and abstractions. Of abstractions, nations in their early life are incapable. But they gave life and personality to their ideals, so that each quality was identified with a god or hero. Vico's conclusion is that every civilisation passes through three stages: the age of gods,

the age of heroes, and the age of men. The rude discipline of the first, controlling men's bestial passions by terror, formed the family. In the heroic age, represented in Homer and in the early annals of Rome, powerful and oppressive aristocracies were formed. In the final stage the aristocracies passed into popular commonwealths, themselves ending in imperial monarchies, and destined ultimately to decay. For the progress conceived by Vico was from birth to maturity and so to decay and death, followed by new birth. It was movement in a cycle, not a steady advance of the human race to a more perfect state. [J. H. B.]

The first edition of the *Principii di Scienza Nuova* was published in 1725, the second, much altered, in 1727, and the third by Vico's son soon after his death, reprinted in 1816 (Milan, 3 vols.). French trans. by Michelet, 1835. Vico is buried in the Jesuit Church (Gesù Nuovo) at Naples.

HERDER, b. 1744, d. 1803.

Johann Gottfried von HERDER was born at Morungen in East Prussia. His father was a village schoolmaster. He studied medicine at Königsberg, and subsequently theology and philosophy. In 1764 he became assistant and also preacher at the cathedral school at Riga; but, wishing to see the world, he accepted the post of travelling companion to the Prince of Holstein-Oldenburg. At Strasburg he was brought into intimate contact with Goethe. In 1775 he obtained the theological professorship at Göttingen, and, under the patronage of the Duke of Saxe-Weimar, pursued his philosophical studies.

His great work, the *Philosophy of the History of Humanity*, was published in 1784. It is divided into twenty books. Beginning with a brief review of man's position in relation to the earth, and to the animal and vegetable kingdoms, he attempts to show, by a review of the various forms of civilisation, a gradual tendency towards the peaceful development of the faculties specially distinctive of Humanity. Herder had a strong though confused conception of progress. He saw that the play of passions led, under the influence of the social state, to the growth of institutions favourable to higher life. He saw too that the ages were linked to one another, and that each received the inheritance of the foregoing. But his scientific training had not been such as to lead him to seek for the precise laws of development, and his Protestantism led him to misunderstand the mediæval period as completely as Condorcet and Voltaire.

[J. H. B.]

H. Höffding: *Hist. of Modern Philosophy* (Eng. trans.). Herder is buried in the Church of St. Peter and St. Paul, Weimar. Bust by Trippel, Weimar.

FRÉRET (*Nicolas*). b. 1688, d. 1749.

Nicolas, son of Charles Antoine Fréret, Solicitor-General of the Parliament of Paris, was born in that city 15th February 1688.

He showed a precocious disposition for study of all sorts, but especially for that of history: and, though urged by his father to adopt the bar as his profession, he obtained leave at last to devote himself to historical research. At the age of 19 he had written several memoirs on the religion of the Greeks: and in 1714 he was admitted to the Academy of Inscriptions. His first paper, a very temperate and carefully reasoned disquisition on the origin of the Franks, and their establishment in Gaul, conflicted with received opinions, by maintaining that their settlement was effected far earlier than had been commonly supposed. It is a singular proof of the arbitrary government then prevailing that this harmless act of independence led to his temporary imprisonment in the Bastille. Henceforth he avoided modern history, and devoted himself to the study of antiquity; his special field being the critical study of ancient mythology, geography, and chronology.

FRÉRET may be regarded as the principal founder of the critical school—in other words, of the scientific method of reasoning in historical research. Many essential principles, the credit of which has been often given to German writers of the nineteenth century, will be found prominently and strenuously maintained by Fréret. In his memoir on early French history, he states his method clearly and simply. "I begin," he said, "by collecting all notices of ancient historians on the subject. I then sift from this evidence all such as is contemporary, and give it preference to the rest. From contemporary writers I select those who were on the spot, and who were from any cause likely to be the best informed. The results so obtained, I piece together in the best way I can, and so construct what seems the most probable narrative of the events." These principles he restated more systematically in his *General Observations on Ancient History*. "The method likeliest to lead us to the truth in any subject whatever, is that which begins by collecting certain knowledge upon certain points, and which aims at general principles only so far as they may seem to follow from the particulars thus reduced to certainty: the method which distinguishes not merely between what is absolutely true or false, but between the various degrees of probability which approach either of these limits; and which, further, is not satisfied with discriminating between the various shades of certainty in the abstract, but which distinguishes the different degrees of certainty that are attainable in each field of research: for almost all have their own special processes of reasoning."

Fréret lived the peaceful and laborious life of a pure student, and died in Paris, 8th March 1749. [J. H. B.]

Fréret left at his death an immense quantity of unpublished works and of uncollected memoirs, and many of the pieces passing under his name are said to be by others. His works were published in a very imperfect and unauthentic collection in 1796-99, in 20 vols. His work on Ancient History is in vols. i.-vi.

WINCKELMANN (*Johann Joachim*), b. 1717, d. 1768.

WINCKELMANN, born at Stendal, a small town in Brandenburg, 9th December 1717, was the son of a shoemaker. His father, intending him for the Church, gave him a good classical education. It was noticed afterwards that the boy from early years had shown extreme interest in antiquities. At sixteen he went to Berlin, at twenty-one to Halle, where he maintained himself for some time as a private tutor. At last he obtained the post of librarian to the Count of Bünau at Nötheniz, near Dresden. Here he devoted himself to the study of ancient art, his knowledge of which brought him under the notice of Archinto, the Papal Nuncio at the Saxon court. Archinto promised him a post in the Vatican Museum on the condition of his becoming a Catholic, to which he willingly acceded. In 1755 he went to Rome, and was well received there by Cardinals Passionei and Albani. He became Albani's librarian, and in 1763 was made President of Antiquities in the Vatican; refusing meanwhile flattering offers from Frederick the Great and other sovereigns. In 1764 his great work, on the *History of Art among Ancient Nations*, appeared. In 1768 he left Italy for Germany, but on passing the Alps was seized with an insurmountable desire to return. On passing southward through Trieste, he was assassinated by a travelling companion, who thought to steal the precious works of art with which he travelled. This was on the 8th of June 1768.

The characteristic of Winckelmann's work is the mass of careful observations collected by delicate and sensitive skill, fired with enthusiasm, on which his theory of art depends. A general solution of the problem of the Beautiful he could not give: but he carefully analysed beautiful things; and, moreover, he insisted on the inseparable connection of art in all its stages with the social state in which the artist lived and moved. His view ranged over every ancient nation which has left artistic products; but Greek art, from its earliest beginnings to its ultimate decline in the later Empire, is the central subject of his work. [J. H. B.]

Winckelmann's *History of Ancient Art* is included in the historical section of the Positivist Library. In German, 8 vols., Dresden, 1808-20. In French, 3 vols. 4to, 1794-1803. In English, by Lodge, 2 vols., 1881. He is buried in Trieste.

MONTESQUIEU (*Charles de Secondat*), b. 1689, d. 1755.

Charles de Secondat, Baron de la Brède et de MONTESQUIEU, was born on 18th January 1689 at the Château de la Brède, near Bordeaux. His family had been ennobled by Henry IV., and held an hereditary post in the Parliament of Bordeaux, to which Montesquieu succeeded in 1714. He had early devoted himself to the study of law, giving his leisure time to physical science and historical research. In 1721 the publication of the *Lettres Persanes*, a criticism of Western life by an imaginary Oriental, brought him fame, though regarded by the authorities as too free-thinking.

He now sold his hereditary post, and devoted himself to literature. In 1734 appeared his work on the *Causes of the Greatness and Decline of the Romans*; and during the fourteen years following he was engaged on his great work, the *Spirit of Laws*. Montesquieu died in February 1755.

The largeness of his conception of law appears in the opening chapter, in which the connection between natural law and human law is distinctly stated. "Laws," he begins, "are the necessary relations following from the nature of things." More explicitly he states afterwards: "Between two bodies in movement, the relations of mass and velocity determine the increase or diminution of movement; throughout every variation there is uniformity and constancy. Similar relations are to be found in human affairs. Before the beginning of positive law, there are natural relations of justice to be sought."

To find these fixed conditions was Montesquieu's object. Some were dependent on the form of government; others on the play of passions to which each form, republican, aristocratic, monarchic, or despotic, was specially favourable. His work is divided into thirty-one books. The first eight deal with the various forms of government, the principles of action in each, and the mode in which each underwent corruption and decay. In a republic he considered that virtue was the principle of stability; in a monarchy, honour; in a despotism, fear. The ninth and tenth books discuss war, defensive and offensive. In the eleventh, twelfth, and thirteenth books, the conditions of political liberty are explained, and their connection with taxation. In the four following books, Montesquieu passes to the subject of climate as affecting national character, and in its bearing on the institution of slavery. Fertility or sterility of soil as affecting civilisation is the subject of the eighteenth book. The nineteenth deals with the bearing of national character on law. The twentieth, twenty-first, and twenty-second discuss the relations of law and commerce. In the twenty-third, population is considered; in the three following books, religion; in the twenty-seventh, inheritance. The work concludes with an historical review of the growth of French legislation from its feudal origin.

The observations of fact contained in this comprehensive sociological treatise are numerous and carefully made. The conception of a social organism held together by interdependent forces, and dependent on external conditions, was more systematically put forward than in any work which had appeared since the *Politics* of Aristotle. Montesquieu's conception of biological science was too imperfect, and the possibility of arriving at definite laws of social progress was, as yet, too remote to give his work more than transitory value; but he is to be regarded as one of the principal forerunners of the science of sociology. [J. H. B.]

L. Lévy-Bruhl: *Hist. of Mod. Phil. in France.* F. Alengry: *Essai Historique sur la Sociologie chez Auguste Comte.* He is buried in St. Sulpice, Paris. *Phil. Pos.* iv. 47, where Montesquieu's work is carefully appreciated. *Esprit des Lois*, ed. Labenlaze, 1875. *Spirit of Laws*, Eng. trans., 1793. Engr. by Saint Aubin.

D'AGUESSEAU, b. 1668, d. 1751.

Henri François D'AGUESSEAU was born 27th November 1668, at Limoges, where his father was Intendant-Général. The father was a man of noble elevation of character, and refused to co-operate in the persecuting policy of Louis XIV. with regard to the Protestants. He gave his son a large and liberal education. The young D'Aguesseau, after studying the philosophy of law with Domat, became in 1690 Avocat-Général, and subsequently, in 1710, Procureur-Général. In this capacity he distinguished himself by his refusal to allow the Papal Bull *Unigenitus* to be registered by the Parliament of Paris, thus preventing its provisions, which suppressed the liberties of the Gallican Church, from becoming law. In 1717 the Regent made him Chancellor, an office to which, after periods of retirement, he was twice reappointed, in 1720 and 1727. He effected many administrative reforms in the management of public hospitals, and in civil and criminal procedure. D'Aguesseau died 5th February 1751, universally respected as a man of wide and varied knowledge, and of spotless purity of character. Voltaire described him as the most learned magistrate that France had ever possessed.

The discourses called *Mercurials*, delivered annually in his capacity of Advocate-General, form a series of philosophic essays, specially directed to the various aspects of a magistrate's career, but in reality applicable to the life of every good citizen. Professional zeal, Public Censorship, Self-respect, Simplicity of life, Judicial submission to Law, Firmness, Economy of time, Attention, Prejudice, Discipline, Patriotism,—these are some of the subjects discussed in these remarkable addresses. Not less noteworthy is his exposition, drawn up for the benefit of his son, of the course of studies in Religion, Jurisprudence, History, and Literature, desirable for the education of a magistrate. [J. H. B.]

He is buried at Auteuil near Paris. Portrait by Mignard; by Vivien.

BUFFON (*Comte de*). b. 1707, d. 1788.

George Louis Leclerc, Comte de BUFFON, was born at Montbard, in Burgundy, 17th September 1707. His father was a councillor in the Parliament of that province, and gave his son a legal training. But Buffon's bent was towards mathematical and physical science; and, after a short period of travel in England and elsewhere, he devoted himself to systematic study, beginning with the translation of certain works on agriculture, and also of Newton's treatise on *Fluxions*. In 1739 he succeeded Dufay as Superintendent of the Jardin des Plantes, instituted just a hundred years before by Guy de la Brosse. The rest of his life, nearly half a century, was spent in the construction of his great work on *Natural History*, in which

Daubenton, Lacépède, and other naturalists were associated with him. Much of his time was spent on his estates in Burgundy, where his wealth was well and liberally administered, and his life organised with great regularity. The audacity of his speculations aroused hostile comment, which he uniformly disarmed by professing submission to the theological faculty, without, however, interrupting his own course of thought. Wishing to lead an untroubled life, he took no part in the *Encyclopœdia*, and was not always on friendly terms with its authors. Buffon died in Paris, April 15, 1788.

The work of Buffon was no mere compilation of descriptive details. His purpose was to conceive of the Earth as a whole, from its first origin as a mass of heated matter thrown out from the sun, gradually developing inorganic and organic forms, and ultimately becoming the home of man, who controlled and modified the other animal and vegetable races, subordinating them to his service. Doubtless this vast programme was not fully executed. Not merely was the life of one man insufficient for it, but scientific knowledge in the middle of the 18th century was too imperfect for the construction of the true theory of life. Chemical science hardly existed; biology was therefore impossible; and Buffon held too much aloof from the political and philosophical movement of his time to conceive of Man's social future as clearly as others of his contemporaries. It is, however, the more wonderful that this accurate and conscientious observer of details should have risen to so lofty and comprehensive a conception of his subject. His pictures of the animals specially associated with man—the horse, the ox, the ass, the sheep, the dog—are permanent masterpieces, inspired with the synthetic and sympathetic spirit of a philosophic artist. Nothing, for instance, can be more forcible than the few sentences in which he points out the influence of the dog on man's dominion. "How," he asks, "without the dog, could man have reduced other animals to subjection, or exterminated the destructive races? To secure his safety and maintain his power, he had to begin by securing a party amongst the animals, by conciliating with kindness those who were capable of attachment and obedience. The education of the dog was man's first art. Gifted with greater swiftness, strength, and even courage than man, and far exceeding him in keenness of sense, the dog when he became man's friend endowed him with new senses and faculties. The instruments we invent to enlarge the range of our senses are far less perfect and less useful than such a ready-made instrument as this offered to us by Nature."

Buffon's discussion of the subject of species is a striking instance of philosophic boldness and caution. Defining species as the succession of similar individuals who can reproduce their kind, and remarking that within the period of human record species appeared to be permanent, he yet fully conceived the possibility, and, indeed, probability, of transformation in pre-human periods. Such trans-

formation was, indeed, involved in his conception of the evolution of the earth. [J. H. B.]

Condorcet: *Éloge*. *Phil. Pos.* vi. 56; and *Pos. Pol.* i. 500, and iii. 507. Laffitte: *Revue Occidentale*, vol. xix. pp. 32-109. Buffon was buried at Montbard. Portrait by Druais, I.; bust by Houdon, L.

OKEN, b. 1779, d. 1851.

Lorenz OKEN studied medicine at Göttingen; and in 1807 became Professor of Medicine in the University of Jena; he subsequently removed to Zurich, where he held the post of Professor of Natural History till his death. The salient feature of Oken's work was his subordination of scientific detail to the influence of philosophy. Schelling was the philosopher to whom he professed allegiance, a confused and dreamy thinker, whose system, nevertheless, inspired Oken with synthetic suggestions of a valuable kind. The principal subject of his meditations was the variety in forms of life, in which he strove to find a unifying principle. His first work, published in 1802, on animal classification, founded on a theory of the Senses, is pervaded by this tendency. In 1806, his observation of skulls suggested to him the same thought that occurred to Goethe, that the skull was a development of the vertebral column; the starting-point of the study of homologies which was prosecuted afterwards with such fruitful results by Geoffrey St.-Hilaire. His scheme of natural philosophy, in which the phenomena of Nature are regarded as embodiments of ideal principles, was fully developed in a work published in 1809; translated into English by the Ray Society with the title of *Elements of Physio-Philosophy*. [J. H. B.]

He is buried at Zurich.

LEIBNIZ, b. 1646, d. 1716.

Gottfried Wilhelm LEIBNIZ was born at Leipsic, 21st June 1646. His father, a jurist and Professor of Natural Philosophy in the University of that city, died early, leaving him to the care of a wise mother, who allowed him great freedom in study. The boy profited by his father's library, entered the University at fifteen, and two years afterwards produced his first philosophical thesis. He devoted himself to jurisprudence, and before he came of age had published two important papers on the philosophy of law. After the death of his mother in 1664 he studied at the University of Altdorf, near Nuremberg. Here he became a member of the Rosicrucian Society, and gained much chemical knowledge. The friendship of Baron von Boineburg, in the service of the Archbishop of Mainz, introduced him to the most cultivated society in Germany, and gave him clear insight into the political state of Europe, then slowly recovering from religious strife, and threatened by the ambitious

schemes of Louis XIV. A paper urging France to develop an Oriental policy, which would distract her attention from Western States, led to the mission of Leibniz to Paris in 1672. Here he came into contact with many followers of Descartes; Arnauld, Malebranche, and, above all, Huyghens. Now for the first time he became associated with that critical period of mathematical research which, dating from the *Geometry* of Descartes, was to culminate, four years later, in his own discovery of the Transcendental Calculus. In the following year public business brought him for a few weeks to London, where he made the acquaintance of the remarkable group of men who had founded the Royal Society. The respective claims of Newton and of Leibniz to the discovery of the Calculus became afterwards matter for acrimonious debate; but a letter of Leibniz to Newton in 1677 shows the Differential Calculus fully formed: the first draft of the letter exhibiting also the symbol of Integration. It was first fully described in the *Acta Eruditorum* of Leipsic, 1684. It is clear from the correspondence that Newton had been for some time in the possession of the method of Fluxions leading to similar results. But Newton had concealed his method in an anagram which, when interpreted, yields no proof that his notation, on which the value of the method depended, was fixed till a much later date. It is in any case certain that the Differentials of Leibniz proved, in the course of the two following generations, far more fertile in discovery than the Fluxions of Newton. In the fitness of the notation lay the chief value of the discovery. That curves might be regarded as polygons with an infinite number of sides was a conception as old as Archimedes: and since Descartes a series of brilliant mathematicians had begun to handle infinitesimal quantities algebraically. The problem was so to handle them as to avoid complicating the equation with an unmanageable mass of irrational quantities; and this the Differential Calculus effected: a result due to a mind of philosophic breadth, for whom mathematics were subordinate to wider inquiries into the vast consequences involved in the summation of minute forces. To Leibniz is also due the first accurate conception of Energy, as measured by the performance of Work. Force, under the title Quantity of Movement, had been regarded as Mass multiplied into Velocity. Leibniz showed that of two equal masses the first if moving with double the velocity of the second would overcome four times the resistance—in other words, that Energy, the power of doing work, varied as the square of the velocity.

In 1676 Leibniz became librarian and privy councillor to Duke John Frederic of Hanover; and in this city the rest of his life was spent. Part of his duty was to compile the annals of the house of Brunswick; and with this object he collected materials from the principal cities of Germany and Italy, of such value for the study of the Middle Ages as to entitle him to be regarded as one of the founders of the critical school of historical research. He was also

much occupied with projects for the establishment in Berlin, Dresden, Vienna, and St. Petersburg, of learned societies similar to those already existing in Paris and London. In the intervals of this public work he was continuously developing the special features of his philosophy.

Locke's doctrine that our ideas were due to external impressions was unacceptable to Leibniz. Nothing in the Intellect, said the Schoolmen and Aristotle, that was not first in the Sense: except, replied Leibniz, the Intellect itself. External influences do but bring into activity what is already there. It was the problem of the mutual action of Organism and Environment, which was afterwards studied by Kant far more systematically.

The principal problem before him was to establish the existence of law in every department of thought in such a way as might be reconciled with the spontaneity of the Individual. Dividing the facts around us into those of life and of non-living matter, and convinced that matter was not set in motion by mind, he conceived the first to result from centres of action created from the beginning of time, which he called Monads, no one of which was precisely similar to another, capable of varying degrees of perception from the plant to Man, capable also of continuous growth. The mental phenomena of these were so arranged as by a pre-established harmony to proceed concurrently with the laws of motion as exhibited in matter, just as two clocks with independent machinery might be so framed as to work together. Each monad was acted on and reacted on the rest: from the accurate inspection of each, the future of the universe might be foretold; for, as he constantly repeated, the Present is pregnant with the Future.

Leibniz spent much thought in reconciling the belief in an omnipotent and benevolent Creator with the existence of moral evil. His solution was that evil was permitted for the sake of greater good. Good, he conceived, immensely preponderated over evil; and much of it, but for evil, could never have come to light. A world free from evil might have been created; yet the good in that world might have been of so much lower sort as to stand, on the whole, lower than that in which we live. It might have been arranged that the crime of Tarquin should not have been permitted; but in that case the Roman Republic, with its vast influence for good, would not have arisen. God then foresees and permits evil: but we must believe that he has created out of all possible combinations that world which on the whole was best. The solvent influence on European thought of this strange line of reasoning was very great. But nothing could be further from Leibniz's purpose than destructive change. The religious strife which had agitated Europe for a century and a half was hateful to him as a barren waste of energy. Not the least remarkable of his many labours was the attempted reconcilement of the Lutheran with the Roman and also with the Anglican Church. On this subject he carried on a long

and very interesting correspondence with Bossuet. As provisional shelters for the mass of mankind all these forms of religion were, he considered, of priceless value. He had no wish to see their utility destroyed by needless antagonism.

Leibniz died in Hanover, 17th November 1716, at the age of 70. We see in him a mind of the highest philosophic power to whom nothing human was foreign. His range of subjects was greater than that of any thinker since Aristotle ; including as it did theology in its broadest relations, every branch of philosophy and science, history, jurisprudence, philology. His energies were spent not solely in abstruse researches for the few and for the future : they were given in part also to his own generation, aiming at the diminution of its sufferings and dangers. [J. H. B.]

H. Höffding : *Hist. of Modern Philosophy* (Eng. trans.). Leibniz's *Works*, published at Geneva in 1768, in six volumes. *Pos. Pol.* i. 393 ; iii. 482-3 ; iv. 27, 181. Leibniz is buried at the Neustädter Kirche, Hanover. Portrait, F.

ROBERTSON (*Dr. William*), b. 1721, d. 1793.

William ROBERTSON, son of a Presbyterian minister, was born in Edinburgh. The son adopted his father's profession, and became a leading man in the General Assembly of the Scotch Church. In 1759 he published his *History of Scotland during the Reign of Mary and James VI.*, a work of much historical research. In 1762 he was made Principal of Edinburgh University, and in 1764 was appointed Historiographer to the King for Scotland. His greatest work, the *History of Charles V.*, preceded by a *View of the Progress of Society in Europe from the subversion of the Roman Empire to the beginning of the sixteenth century*, appeared in 1769. Robertson also wrote a *History of America*, published in 1777. He died in Edinburgh, June 1793.

Robertson's claim to admission amongst philosophic thinkers rests upon his powers of generalisation. He was not content with bare narration of the facts of history. Amidst the mass of special detail he sought for the general facts, in other words for the laws, regulating and informing the whole. In speaking, for instance, of the establishment of the feudal system in Europe, he remarks that " though the barbarous nations which framed it settled in their new territories at different times, came from different countries, spoke various languages, and were under the command of separate leaders, the feudal policy and laws were established with little variation in every kingdom of Europe." This amazing uniformity is not, he continues, to be attributed to racial distinctions. " It may be ascribed to the similar state of society and manners to which they were accustomed in their native countries, and to the similar situation in which they found themselves on taking possession of their new domains."

In analysing the rapid progress of society from the 11th to the 16th centuries, he traces the influence due to each of various causes. (1.) The Crusades, which familiarised Western Europe with the more polished culture of the Eastern Empire and of Asia, which promoted the consolidation of feudal baronies into kingdoms, prevented internal strife during the absence of warriors on a sacred mission, and stimulated the commercial energies of the Italian republics. (2) The growth of municipalities, and the grant of charters of incorporation. (3.) The growth of the *Tiers État*, or burgher class, as a political force. (4.) The enfranchisement of serfs. (5.) The improvement in the administration of justice resulting from the abolition of private war and of trial by judicial combat, and from the appeal from baronial to superior courts. (6.) The prevalence of the canon law, far more favourable to individual rights than the feudal. (7.) The subsequent prevalence of the Roman law. (8.) The spirit and the institutions of Chivalry. (9.) The progress of Science, due to its culture by Arabs when Western Europe had neglected it. (10.) The revival of Commerce. [J. H. B.]

He is buried in the Greyfriars Churchyard, Edinburgh. Portrait by Raeburn; med. by Tassie, S.P.G. *The History of Charles V.* is in the Positivist Library.

GIBBON (*Edward*), b. 1737, d. 1794.

Edward GIBBON was born at Putney, 27th April 1737. His parents were in easy circumstances; his father sitting for some years in Parliament as an opponent of Walpole. The boy inherited a sickly constitution, and owed much to the care of his mother's sister, Catherine Porten. He was for a time at Westminster School, subsequently at Magdalen College, Oxford. Excused by health from the ordinary routine of study, which indeed in the Oxford of that time was carelessly enforced, he devoted himself to history. In his extensive course of reading he fell upon Bossuet's controversial writings, which converted him to the Roman Catholic faith. This cut short his university career; and he was placed at Lausanne under a Calvinist minister, Pavilliard, under whose influence he speedily relapsed into Protestantism. He lived five years at Lausanne, carrying out an extensive course of historical reading. Here occurred his brief period of love for Mademoiselle Curchod, daughter of a Swiss pastor, who afterwards became Madame Necker. In 1758 he returned to England, and lived in retirement for some years in his father's house. A captaincy of militia gave him experience which he maintained was useful to his historical pursuits. In 1763-4 he travelled. In Paris he was brought into contact with the Encyclopædists. In Rome he first conceived the project of his great History. But this was not begun till 1770, when his father's death left him his own master. The first volume was published in 1776; the work was finished in 1787 at Lausanne, whither he had retreated

some years before. He had held a seat in Parliament, and an office in the Board of Trade ; but he had found these occupations obstructive to the work of his life. In 1793 Gibbon returned to England, and in the following year, January 16, he died.

Gibbon, in his *Decline and Fall of the Roman Empire*, proposed "to connect the ancient and modern history of the world." He has divided it into three periods :—(1) from Trajan to the fall of the Western Empire ; (2) from Justinian to the revival of that Empire under Charlemagne ; (3) from Charlemagne to the capture of Constantinople by the Turks.

It would be idle to attempt in two sentences any estimate of the splendid literary power, the comprehensive and accurate learning, the wit and irony, the stately eloquence of this great work. His review of Roman jurisprudence has been praised by lawyers. Of his account of the Christian Church, the late Cardinal Newman has said that, in spite of its Voltairian sneers, no Church history so adequate has been written ; for Gibbon has treated Catholicism not as a body of doctrines, but as a social force. [J. H. B.]

J. C. Morison : *Gibbon* (Eng. Men of Letters). *Pos. Pol.* iii. 351. *The Decline and Fall* is included in the Positivist Library. The best edition is that of J. B. Bury, who has also edited Gibbon's *Memoirs*. Gibbon is buried at Fletching in Sussex, near the seat of his friend and biographer, Lord Sheffield. Portrait by Reynolds ; by Walton, N.P.G.

ADAM SMITH, b. 1723, d. 1790.

Adam SMITH was born at Kirkcaldy in Scotland, 5th June 1723. His father died before his birth. His mother, to whom he was devotedly attached, lived with him for nearly sixty years. He was educated at the grammar school of his town, then at Glasgow, finally at Balliol College, Oxford ; his favourite studies being mathematics and natural philosophy. In 1751 he became Professor of Logic, and in the following year Professor of Moral Philosophy, in the University of Glasgow. About this time he formed an intimate friendship with Hume, whose *Essays* had just been published. In 1759 appeared his *Theory of Moral Sentiments* ; a work in which Hume's influence is unmistakable. In 1764-6 he travelled in France and came into contact with much of the French intellect of that remarkable time, especially with Quesnai, Turgot, D'Alembert, and Helvetius. His mind was thus strongly directed to economic subjects. The next ten years were employed in his *Enquiry into the Wealth of Nations*, which was published in 1776. The last part of his life was spent in Edinburgh. His work on the *History of Astronomy* forming part of the Positivist Library—a fragment of a work never executed, on the history of science—was not published till after his death. Smith died July 1790.

The *Enquiry into the Wealth of Nations* has little in common with the numberless treatises on the so-called science of Political Economy which succeeded it. It makes no pretensions to lay down unmodifi-

able laws of social action, or to deduce from arbitrary definitions of Value, Utility, Productive Labour, etc., a complete theory of industrial phenomena. Smith, knowing well what Science really was, was perfectly aware that he was not founding a new science. What he did was to throw light on certain important aspects of social philosophy, by a series of essays dealing with the division of labour, the formation of capital, the function of money, of banks, etc., having specially in view the mistakes made by statesmen in their statutory interference with the course of industry. Far from maintaining that the laws of economic action were unchangeable fatalities, a large part of the work is occupied with the description of their modification by customs and institutions, by combinations of employers and workmen, by statutes, and above all by theories of industrial action. In much of his work he had been anticipated by the French economists, who, with Quesnai at their head, were protesting against errors of Colbert's commercial policy, based on the theory that money being the most valuable form of wealth, a nation's exports ought to exceed her imports. Quesnai had rightly shown that the produce of the soil was the most important form of wealth, but fell into the mistake of denying the value of manufacturing industry. Hume in his economic essays had laid down the truth briefly and clearly; and much of Adam Smith's *Enquiry* is an expansion of Hume. Most remarkable throughout what Comte describes as this "immortal work," is the systematic use of the historical method, a sure safeguard against the dangers of attributing absolute value to any special policy, or of attempting to separate the economic from the moral and political aspects of the social organism. Sympathy with popular wellbeing pervades the work. The inequality of the law which permitted combinations of masters, while repressing those of men, is exposed. It is explained that high wages are less injurious to trade than high rates of profit. Smith insists, too, on the hardship of the laws of settlement; on the need of popular education; and on the importance of carrying out industrial changes with due regard to the mass of people previously employed on the older system. [J. H. B.]

John Rae: *Life*. F. W. Hirst: *Adam Smith* (Eng. Men of Letters). R. B. Haldane: *Adam Smith*. H. Höffding: *Hist. of Modern Philosophy* (Eng. trans.). *Early Essays*, 306; *Phil. Pos.* iv. 47. Adam Smith is buried in the Canongate Churchyard, Edinburgh. Med. by Tassie, S.P.G. (cast, N.P.G.).

DUNOYER, b. 1786, d. 1862.

Charles Barthélemi DUNOYER was born at Carennac, department of Lot, 1786. In conjunction with Charles Comte, he edited (1820-5) the remarkable journal known as *Le Censeur*, to which Auguste Comte contributed some important papers. In 1832 he became a member of the Institute. In 1833-7 he was Prefect of the Department of the Somme. His principal work on Freedom of Labour

(*De la liberté du travail*), appeared in three volumes in 1845 : part of it had been published twenty years earlier.

Dunoyer was an economist, a systematic opponent of Communism, an advocate of unfettered individual action. But he is distinguished from the mass of economic writers of his time by his clear apprehension that the industrial side of human affairs could not be separated from the general course of civilisation. "Political Economy," he said, "has for its province the whole order of things which results from the exercise and development of the social forces." This was in fact to make the term synonymous with Sociology. Industry, as he conceived it, fell into two great divisions : one dealing with the World, the other with Man. The latter was concerned with (*a*) the amelioration of our physical nature, (*b*) the culture of imagination and sentiments, (*c*) the education of intelligence, (*d*) the improvement of moral habits—in other words, with the four functions of physician, artist, schoolmaster, and priest. The two divisions of Industry correspond thus, as Comte remarks, with that of temporal and spiritual power. [J. H. B.]

Dunoyer : *Œuvres* (with introduction by Mignet), 3 vols. Comte has cited this writer frequently :—*Early Essays*, 321 ; *Phil. Pos.* v. 54 ; *Pos. Pol.* i. 127, ii. 261 and 332, iii. 51, iv. 407.

KANT, b. 1724, d. 1804.

Immanuel KANT was born at Königsberg, 22nd April 1724. His family was of Scotch origin. He studied mathematics and physics at his native university, and published several memoirs on these subjects. In one of these he predicted the existence of the planet Uranus, subsequently discovered by Herschel. In 1770 he was appointed Professor of Logic and Metaphysic. In 1781, after twelve years of preparation, appeared his great work, the *Critique of Pure Reason*, an event of first-rate importance in the history of Philosophy. The second edition, with some substantial alterations, appeared six years after. In the interval was published the remarkable essay on the *Conception of Universal History, as tending to World-Citizenship*. Later, in 1788, Kant sought, by his *Critique of Practical Reason*, to modify the negative results of his greater work. He never left Königsberg, where he lived with extreme simplicity and regularity, universally respected. In politics, and especially in the French Revolution, he took the keenest interest. He died in his 80th year on the 17th of February 1804.

Kant fully accepted Hume's conclusions as to the relativity of knowledge. He agreed that our perceptions of the outer world were reducible to mental impressions and ideas. Underneath these impressions and ideas, Hume maintained there was no fact that could be stated with certainty. Kant, however, sought to analyse and explain the fact of knowledge. What is the structure of the human mind that makes knowledge possible ? Distinguishing in human

judgments those that added to knowledge (synthetic) from those that were merely explanatory (analytic), he inquired whether synthetic judgments independent of experience (*a priori*) were possible. He decided that the conclusions of geometry fell under this head, being evolved from what he called "pure intuitions" of Time and Space not dependent on sensation. Time and Space had no objective existence, but were simply modes or forms of our mental structure. To the Positive philosopher this reasoning is inconclusive. The truths of geometry, like those of other sciences, are reached originally by induction; and they owe their character of necessity and obligation to their simplicity and freedom from the complicating influence of other phenomena.

No attempt can be made here to describe Kant's philosophical system. The important principle resulting from it is the conception of knowledge as resulting from the interaction of two factors—one supplied by the outer world, the other by the structure of the human mind. Thus Kant's fundamental principle is a special instance of the essential fact, first indicated by Comte, and subsequently illustrated with such fulness by Spencer, which constitutes Life of every kind: the action and reaction, tending towards adjustment, between organism and environment.

Of unconditioned existence, of "things in themselves," Kant held that we could have no knowledge whatever. Every attempt to prove or disprove the existence of a Supreme Being he assailed with unsparing logic. Yet his strong ethical sense led him, in his *Critique of Practical Reason*, to maintain instinctive belief in God and immortality as the foundation of virtuous conduct; and this cannot surprise us in the absence of the human synthesis, the establishment of which he could not live to see.

His work on *Universal History* must take its place, with the similar works of Turgot and Condorcet, among the preparations for the Sociology of Comte. It opens with the broad statement that the actions of men, like all other natural phenomena, take place in accordance with general laws. Kant goes on to explain with extreme precision that the play of man's passions, private and social, tends towards an ultimate state, not consciously perceived by any one generation, in which the self-seeking propensities of individuals, and the ambitious tendencies of nations subordinate themselves without self-extinction, to a state of social harmony. For arrival at this final state, egoism no less than altruism is necessary. The struggle to improve personal wellbeing has stirred man's energies to the creation of new ideals which, once arisen, have knit men together by free-will, and have thus diminished the need of compulsory union. [J. H. B.]

J. H. W. Stuckenberg: *Life of Kant*. H. Höffding: *Hist. of Modern Philosophy* (Eng. trans.). *Pos. Pol.* i. 356-9. *The Critique of Pure Reason* has been translated by Meiklejohn and by Max Müller: the *Essay on Universal History* by De Quincey. His *Principles of Politics*, including his essay on *Perpetual Peace*, has also been translated into English. Kant is buried outside Königsberg Cathedral. Portrait by Schnorr, Dresden.

FICHTE, b. 1762, d. 1814.

Johann Gottlieb FICHTE was born at Rammenau, in Upper Lusatia, on May 19, 1762. As a child he showed much intellectual and moral promise. A friend of the chief proprietor of the village, Baron von Mittitz, was struck by him, and charged himself with his education. After a period of private tutorship, he gave lessons in philosophy in Leipsic. Here he first read Kant's writings, which deeply impressed him. He ultimately obtained an introduction to Kant, who gave much encouragement to his work on a Critique of every possible Revelation. This, when anonymously published, was at first attributed to Kant; when the author was known, it led to his obtaining in 1793 the Chair of Philosophy at Jena. Accused, absurdly enough, of Atheism, he resigned this post for another at Erlangen, from which he passed ultimately to Berlin. He entered eagerly into the struggle of the German youth against Napoleon; in 1813 he became a volunteer, and in 1814, 28th of January, died of fever contracted in attendance on his wife, who had herself been worn out in nursing sick and wounded soldiers.

His metaphysical system was a claim to discover the principle by which transcendental knowledge could be grasped. If the Will were rightly directed towards the Good, the Understanding would of itself apprehend the True. The precise nature of the imposing metaphysical structure which Fichte erected on this basis cannot be discussed here. His affinity to Positivism rests on the *subordination de l'esprit au cœur*: and on his anticipation, confused though it was, of the Logic of Feeling as inseparable from the Logic of Images and of the Logic of Signs. "Be noble," he said, "and then shalt thou see such truth as is needful for thee." [J. H. B.]

H. Höffding: *Hist. of Modern Philosophy.* Fichte is buried in the Dorothaenstadt Cemetery, Berlin.

CONDORCET (*Marquis de*), b. 1743, d. 1794.

Marie Jean Antoine Nicolas Caritat, Marquis de CONDORCET, was born in Picardy, 1743. He distinguished himself as a mathematician, and became a member, and ultimately the secretary, of the Academy of Sciences. His biographical notices of Academicians, especially those of Voltaire and Turgot, have considerable value. He refused in 1777 to pronounce a panegyric on the Duc de la Vrillière; and on Turgot's fall he resigned the post which he held under Government. He was elected in 1791 to the Legislative Assembly, and the next year to the Convention. Though not strictly a Girondin, he was proscribed after the fall of that party, and lived for some months in hiding. On 27th March 1794 he was arrested at Clamart, and taken to Bourg-la-Reine, where a day or two later he was found dead in prison.

It was during this proscription that he wrote his immortal work on the *Progress of the Human Mind*; by which Comte's intellect was so powerfully stimulated that he always spoke of Condorcet as his spiritual father.

The most valuable part of this work is the introduction, which indicates the method followed; and the final conclusion, which presents a picture of the Future founded on the scientific study of the Past. He begins by clearly distinguishing between the study of the individual and that of societies; the latter offering first the phenomena of reaction between individuals, and secondly those of the succession of generations. Most noteworthy also is his procedure of abstracting from the concrete description of travellers and of historians the broad facts common to each particular case. We must choose and combine, he said, these general facts from the history of different peoples, so as to construct the hypothetical case of a single nation continually progressive from the beginning of time. He divides the life of such a nation into nine periods. Passing from the tribe living by the chase to the nomad peoples, and thence to the sedentary stage of tillage, in which finally alphabetic writing is discovered, he reaches Greek civilisation, saved from destruction by the battle of Salamis. He describes the rise of Greek philosophy and art, the beginning of the Positive sciences of mathematics, biology, and ethic: Roman conquest, and its precious legacy of jurisprudence; the rise of Christianity from the decay of Rome: the obscurantism which followed: the culture of positive Science by the Arabs: the renascence of Science in Europe with the Crusades; the discovery of the compass, and the invention of printing: and the stimulus to free thought given by the Reformation. The title of his Ninth Period is remarkable as showing his firm grasp of the correlation of social and intellectual changes: "From Descartes to the formation of the French Republic." He concludes with an impressive picture of the "Future of the Human Mind," and of the social renovation which will follow from it.

Comte, while dwelling on his debt to Condorcet, is not sparing of criticism. The defect which goes far to vitiate his whole treatment of the subject is that much of the work consists in declamations against the tyranny of government and the oppressive results of priestcraft and superstition: so that the progress ultimately attained in the 18th century would seem to be the issue of a series of retrogressions. It presents in fact the anomaly of an effect without a cause. Greece is well appreciated by Condorcet: of the work of Rome he had an incomplete conception; of the Middle Age a complete misunderstanding. He admits, indeed, that the civilisation of antiquity rested on slavery, which Christianity led the way in suppressing. But, absorbed in horror at the intellectual stagnation that accompanied the rise of the Christian Church, he was wholly blind to the beneficial influence of a moral government of men modifying the tyranny of physical force, and tending to purify the

inward principle of human action by controlling selfish passion and stimulating reverence and love. Thus it was that the historical philosophy of Condorcet needed to be supplemented by the thinkers of the counter-revolution, De Maistre and Bonald, before Comte could evolve the wider philosophy in which the two opposing views are reconciled. [J. H. B.]

J. Morley: *Critical Miscellanies*, ii. L. Lévy-Bruhl: *Hist. of Mod. Phil. in France.* F. Alengry: *Essai historique sur la sociologie chez Auguste Comte. Pos. Pol.* iii. 510, 527; *Early Essays*, 178-193. His *Esquisse d'un tableau historique des progrès de l'esprit humain* has been translated into English as *The Progress of the Human Mind.* This work, and the admirable tract on *Elementary Arithmetic*, also written during his proscription, are in the Positivist Library. The latter has been translated by Dr. Kaines. Condorcet was buried at Bourg-la-Reine. Engr. from drawings by Bonneville and G. St. Aubin.

FERGUSON (*Adam*), b. 1724, d. 1816.

Adam FERGUSON, born in 1724, was the son of a parish minister in Perthshire. He served as chaplain in a Highland regiment, the Black Watch, till 1757, when he retired to Edinburgh, where he became Professor, first of Natural Philosophy, subsequently of Moral Philosophy. He published in 1767 an essay on the *History of Civil Society*; and in 1763 his great work on the *Progress and Termination of the Roman Republic*: the first systematic study of the development of the internal constitution and external policy of Rome. Ferguson was on intimate terms with the group of remarkable men that made Edinburgh illustrious in the last century—Hume, Robertson, Adam Smith, Dugald Stewart, and Playfair. He died in his 92nd year, at St. Andrews.

Comte noticed with approval Ferguson's striking observations on the conquest of one nation by another. No fundamental change in the structure of the conquered nation was effected thereby: all that was done was to modify, for better or for worse, certain tendencies that already existed (*Phil. Pos.* iv. p. 289, and *Pos. Pol.* ii. 370). Comte notes also Ferguson's distinction between the merely social and the political animals: the latter combining individual effort for the attainment of a common purpose (*Phil. Pos.* iv. p. 422). Ferguson's history is remarkable for the critical and scientific spirit in which early Roman legend is discussed: anticipating in this respect by nearly half a century the work of Niebuhr.

[J. H. B.]

He is buried in the precincts of St. Andrews Cathedral. Portrait by Raeburn, Edin. Univ.

DE MAISTRE, b. 1754, d. 1821.

Joseph Marie DE MAISTRE was born at Chambéry, 1st April 1775. His father was President of the Senate of Savoy, and was a man of vigorous character, deeply respected. His son, the eldest of ten children, passed through the various grades of magistracy, and became a Senator while his father was President. His affectionate

veneration for both his parents was noted. While a student at Turin, he read no books without their consent. In politics he was suspected of liberalism; but when the French republicans invaded Savoy, in 1793, he showed high spirit in resisting their requisitions. After holding a high official post in Sardinia, he was sent in 1802 as Minister Extraordinary to St. Petersburg, where he lived for fifteen years, and where most of his works were written. After the fall of Napoleon, he was suspected by the Russian Government, wrongly enough, of proselytism, and he left the country for Turin, where he died, February 26, 1821.

His letters and memoirs during the Revolution and the Empire are full of keen insight and wise observation. Though a strict Conservative in every sense, the blind fury of the reactionists was always repulsive to him. He wished France to be restrained but not crushed. The partition of France, for which many of them were eager, would be, he said, one of the greatest calamities that could afflict humanity. In politics, as in physics, there is only one sound method, he remarked: the method of experiment. This led him to foretell with certainty the fall of Napoleon, a conviction in which he never wavered.

His political philosophy is embodied in his work on *The Pope* (*Du Pape*, 1819). It produced a profound impression on the mind of Comte, who says of it that it supplied what was wanting in the historical philosophy of Condorcet: it enabled him to appreciate the Middle Age, which to Condorcet's mind was mere barbaric darkness; and it gave him insight into the permanent conditions of political order (*Phil. Pos.* iv. p. 138 note). He remarks also on the Positivity of de Maistre's method; his defence of the Papal power, for instance, being based almost entirely on human considerations.

The treatise is in four books. The first deals with the Pope in relation to the Catholic Church, and discusses the question of Infallibility, which he describes as a necessary condition of government. There must be a final decision somewhere, from which there is no appeal. This final decision rested with the Pope, and not with the Councils. The second book treats of the Pope's relation to the Temporal Power, in modifying the harshness of sovereignty, in upholding public morality and the sanctity of marriage. A striking reference is made to the bull of Alexander VI., settling the colonial dissensions of Spain and Portugal. In the third book the influence of the Papacy on general civilisation is noted: and the fourth discusses its relation to schismatic Churches. De Maistre's remarks on Sovereignty as an attribute inseparable from every government of whatever form are very striking, and their influence is seen in Comte's examination of the theory of government in the second volume of his *Positive Polity*. [J. H. B.]

J. Morley: *Critical Miscellanies*, ii. H. Höffding: *Hist. of Modern Philosophy* (Eng. trans.). L. Lévy-Bruhl: *Hist. of Mod. Phil. in France*. *Pos. Pol.* iii. 527. *Du Pape* (trans. into English as *The Pope*) is in the Positivist Library. De Maistre is buried in the Jesuit Church, Turin.

BONALD (*Vicomte de*), b. 1754, d. 1840.

Louis Gabriel Ambrose, Vicomte de BONALD, was born at Millau, in the department of Aveyron, 2nd October 1754. He came of an old family which had zealously resisted Protestantism in the previous century. He was brought up, and remained all his life, a strict Catholic. After studying in Paris, and serving a short time in the army, he became mayor of his town, and in 1790 President of the newly-formed department of Aveyron, but resigned his post when the Civil Constitution of the Clergy became law. As the Revolution went on, he became its firm opponent, joined the emigration, and settled at Heidelberg and afterwards in Switzerland. Here he wrote his first work, on the *Theory of Political and Religious Authority Demonstrated by Reason and by History*, which contains all his leading principles. It was a systematic and extremely effective onslaught on the *Social Contract* of Rousseau. The stand-point is that of a Catholic thinker and statesman ; but the method and many of the conclusions are of permanent scientific value. Man, he says, does not constitute society any more than he gives weight to matter. Society constitutes itself by laws which man may disturb, but cannot alter. What are all sciences, he asks, compared with the science of society ? Bonald returned to France at the fall of the Directory, and became absorbed, in connection with Châteaubriand, Lamennais, and others, in consolidating the reaction of opinion against the negativism of Revolutionary thinkers. At the Restoration he took an active part in politics. At the Revolution of July he retired to the small remnant of his ancestral estate which had not been confiscated. There he died, 23rd November 1840.

[J. H. B.]

Bonald : *Considérations sur la Révolution Française*, ed. by L. de Montesquieu. *Pos. Pol.* iii. 519. Bonald is buried at Millau.

HEGEL, b. 1770, d. 1831.

Georg Wilhelm Friedrich HEGEL was born at Stuttgart, 27th August 1770. He received a classical education, completed at Tübingen, where he was a fellow-student of Schelling. The certificate received there described him as specially deficient in philosophical power. All his enthusiasm was at that time given to the study of ancient history. After supporting himself for a while by private tuition, he settled in Jena, where he published an attack on Newtonian astronomy. Here he came into contact with Goethe, who recognised his power. His first philosophical work, *The Phenomenology of Spirit*, was completed in 1806, on the eve of the celebrated victory of Napoleon over the Prussians. In 1816 he became Professor of Philosophy at Heidelberg, and two years subsequently at Berlin, where he gathered round him a school of eminent disciples. He died in that city of cholera, on the 24th of November 1831.

No account can be given here of the vast ontological fabric on which most students of Hegel would rest his reputation. He himself was wont to say that but one of his disciples understood his system, and he not rightly. His principal interpreter in England (Stirling) throws extreme doubt on the correctness of his German interpreters. It is not on account of these obscure constructions that he finds a place in the Calendar. But with Hegel, as with other minds of native power, the Positive spirit asserts and disengages itself in spite of metaphysical trammels. For the Positive student the most important result is that Philosophy is not regarded as an isolated pursuit, to be followed independently of the whole structure of the world and human life. The world and man being regarded as partial embodiments of universal Reason, it followed that they were alike subject to Law.

In his *Philosophy of History*, an exoteric work which those who find his *Logic* and *Metaphysic* inaccessible may study with good hope of profit, the unity of history and the filiation of succeeding generations is clearly and strongly grasped. When he tells us that Reason is the Substance and the Infinite Energy of the universe, we may decline to follow him into such fathomless waters; but when he presents his philosophy as a development of the view of Anaxagoras that Νοῦς (Mind) governs the world, and further explains that in this he refers to no inscrutable providence, but to the informing Ideas, or, as Positive Philosphy would say, the Abstract Law, visible through the complications of history, we feel that we have reached firmer ground. We remember the maxim announced in the first chapter of Comte's great work, that Ideas govern the world: and that, amidst the complications of concrete facts, a Law is to be found to which the facts tend, however obscurely, to conform.

The object, Hegel goes on to explain, of the Philosophy of History is to present the series of human events as the embodiments of the informing Idea. Slowly and step by step progress becomes more rational: conformity of fact to idea more complete. The path of progress is through the play of human passions: without passions nothing great is accomplished. "The passions of men are gratified: they develop themselves and their aims in accordance with their natural tendencies, and build up the edifice of Human Society; thus fortifying a position for Right and Order against themselves." The ultimate perfection of the State is when the consciousness of freedom is perfect: when the private interest of citizens coincides with that of the State. The affinity of these thoughts with those of Comte, amidst the needless obscurity of the language in which they are often enwrapped, is obvious: and it appears no less in Hegel's definition of world-historical men, as those who act instinctively as the agent of some change for which the time is ripe.

[J. H. B.]

H. Höffding: *Hist. of Modern Philosophy* (Eng. trans.). Hegel: *Philosophy of History* (Eng. trans.), Bohn's Stand. Library. Hegel is buried in the Dorothaenstadt Cemetery, Berlin.

SOPHIE GERMAIN, b. 1776, d. 1831.

Marie SOPHIE GERMAIN was born in Paris in 1776. Her father was a member of the Constituent Assembly. At an early age the accidental opening of Montucla's *History of Mathematics* inspired her with a keen desire of studying this science. In spite of much discouragement from her family, she mastered the principles of the Infinitesimal Calculus by the help of such books as she could procure. She entered into correspondence with Lagrange, and with Gauss, who were much impressed, not with her attainment only, but with her originality. When Chladni showed his experiments of the figures produced by sand on vibrating plates, she undertook the formidable task of forming the equations of these vibrations, in which, with some help from Lagrange and subsequently from Fourier, she succeeded. But her genius was encyclopædic, not special. Her range of study in art and science was extremely wide : as her very remarkable work, which she did not live to complete, on the *State of the Sciences and the Arts at different Epochs*, is enough to show. The leading thought of this work, of which Comte speaks in high praise, is that the method followed by the original thinker whether in art or in science is substantially the same—a thought worked out with extreme vividness, and drawn from her own experience.

She died June 27, 1831, not more admired for the brilliancy of her conversation and wide attainment than loved for her sweetness of disposition and total absence of self-complacency.

[J. H. B.]

Positivist Review, Nov. 1915, p. 249 (art. by Dr. Desch). *Pos. Pol.* i. 577. Sophie Germain is buried in Père La Chaise, Paris.

HUME, b. 1711, d. 1776.

David HUME was born in Edinburgh on 26th April 1711. His family was of noble origin, but poor. Hume was intended for the law, but from an early date gave all his energies to historical and philosophical study. At the age of 23 he went to France, living, however, not in the capital, but in Champagne and Anjou. Here he spent three years in the composition of his *Treatise of Human Nature*, which was published in 1739 after his return to Britain. It contains the principles of his philosophy in a more elaborate and systematic form than his *Essays*, published in Edinburgh at various intervals between 1742 and 1752. The *Treatise* attracted no attention : the *Essays* after a few years became matter for angry controversy, into which, however, Hume persistently refused to enter.

After a short interval passed as attaché to a military embassy at Vienna and Turin, Hume returned to Scotland in 1749. In 1752 he completed his *Essays*, by what he judged his best work, the *Enquiry concerning the Principles of Morals*. The next nine years

were occupied with his *History of England*. In 1763 he became Secretary to the Embassy in Paris, and was there for three years, in close intercourse with Diderot, d'Holbach, Helvetius, and the other Encyclopædists. The last years of his life were spent in Scotland. His autobiography, written with masterly clearness and simplicity a few months before his death, and the letter of Adam Smith describing his last hours, testify to his calm, genial, and sympathetic nature, not wanting in courage and resignation. The date of his death was 25th August 1776.

Hume is to be regarded as one of the principal founders of the Positive Philosophy. Descartes had carried the Positive spirit into the preliminary sciences, and had shown their bearing upon social life: but with intellectual and moral phenomena he had dealt for the most part by metaphysical methods. Hume was the first to see clearly that the great starting-point of Cartesian metaphysics, the fact of self-consciousness, was not more amenable to demonstration than was our belief in the existence of an outer world. That we possessed both these beliefs was certain, in common probably with the higher animals; but to prove their validity, or to discuss the nature of their objects, was not possible for man.

Limiting himself therefore to phenomena, Hume went on to explain that the materials of our knowledge are of two kinds; vivid impressions and faint impressions. To a series of vivid impressions of form, colour, weight, texture, etc., constantly found in conjunction, we attach by an instinctive belief the notion of external body. Of these vivid impressions there are faint echoes or repetitions. These, to distinguish them from the vivid impressions, Hume, following Locke, called Ideas.

If the idea of an apple results from the vivid impression of an apple, does not the first prove the existence of the second, since every effect must have a cause? Here we come to the most salient point of Hume's philosophy, the elimination of the conception of Cause, as nothing but a mental figment. "The idea of cause and effect," he says, "is derived from experience, which, presenting us with certain objects constantly conjoined with each other in a certain order, produces such a habit of surveying them in that relation, that we cannot without a sensible violence, survey them in any other." Two vivid impressions being constantly seen in sequence, the belief arises in our minds, not merely that one will be followed by the other, but that the first possesses power to produce the second. A billiard ball in motion strikes another, and there ensues the motion of the second ball. This, said Hume, is all that we can assert with philosophical certainty. To maintain the existence of a power in the first ball to produce the motion of the second, is to go wholly outside the limits of our knowledge.

It has been objected to this view, that night always follows day, yet that day is not regarded as the cause of night. But here we have a cycle, not a succession. Day follows night as well as precedes it.

Placing an opaque body in the line of the sun's rays, we mark that a shadow results; and we say that the body is the cause of the shadow. This assertion of a cause, of a power to produce, is called by Hume a mental fiction, or habit, from which, however, we cannot escape. Hume extends this view to impressions arising from an internal source. A man determines to raise his arm. The volition is followed by the contraction of certain muscles. To introduce a mysterious agency called will, or force, as explanatory of the sequence of the contraction on the volition, does not help us forward in the least. A similar train of reasoning led to his remarkable analysis of the fact of Belief, as a "Vivid idea related to or associated with a present impression." "The effect of belief is to raise up a simple idea to an equality with an impression."

Having thus laid the foundation of the Positive method, and demonstrated the futility of metaphysical discussion, Hume passed, in his *Essays*, to other subjects. Amongst them are a series of very valuable studies on commercial and industrial relations, in which Adam Smith's principal conclusions are, at least implicitly, contained.

His Ethic, contained in his *Enquiry concerning the Principles of Morals*, rightly regarded by himself as his most important work, is a striking example of the application of the Positive method to the highest order of phenomena. Avoiding all speculation as to the origin of evil, or as to the existence of a special faculty for the discernment of right and wrong, he asked two plain questions, susceptible of a definite answer: first, What are the actions and motives which men in all ages and countries praise or condemn: secondly, Can we see how this praise and condemnation arose? The first was a question of Ethical static to be solved by induction from facts; the second of ethical dynamic, demanding a law of filiation or evolution.

With admirable clearness and directness of illustration, he shows that Virtue, or personal merit, consists in the possession of mental qualities useful or agreeable to the person himself or to others. Not that men's approbation of these qualities rests upon an elaborate calculation of personal interest. It is instinctive and immediate, and operates where no such interest is involved. Gradually, as the social state widens from the family to the tribe, and from the tribe to a large political community, the qualities tending to the good of that community are more keenly recognised. The instinct of benevolence, of a fellow-feeling with others, is innate in human nature. Crushed at first by coarser animal passions, it gradually asserts itself, because, unlike the other instincts, it arouses no antagonism, and can be indulged by all simultaneously. This instinct therefore is the principal source of morality. The identity of Hume's ethical principle with that of Comte is obvious; though it needed Comte's theory of history to explain the long course of social discipline by which the conception of humanity, at first so feeble, is at last tending to become dominant.

We have finally to note Hume's remarkable study on the Natural History of Religion: in which though Fetichism is not clearly distinguished from Polytheism, yet the origin of Fetichism—that is to say, the tendency to explain phenomena by the attribution to them of human passions—is clearly indicated. "There is an universal tendency," he says, "amongst mankind to conceive all beings like themselves, and to transfer to every object those qualities with which they are familiarly acquainted, and of which they are intimately conscious. We find human faces in the moon, armies in the clouds; and by a natural propensity, if not corrected by experience and reflection, we ascribe malice and goodwill to everything that hurts or pleases us."

In the Preface to the *Positivist Catechism*, Comte speaks of Hume as his principal philosophical predecessor. He speaks of his theory of Causation (*Phil. Pos.* vi. p. 259), as the only step of first-rate importance towards establishing the relative character of true philosophy since the triumph of the Nominalists over the Realists.

[J. H. B.]

T. H. Huxley: *Hume* (Eng. Men of Letters). H. Höffding: *Hist. of Modern Philosophy* (Eng. trans.). *Pos. Pol.* iii. 503-5. Hume's *Essays* are included in the Positivist Library. He is interred in the Calton burying-ground, Edinburgh. Portrait by Allan Ramsay, S.P.G.

MODERN STATESMANSHIP.

DURING the Modern Period we discern two movements going on side by side; one destructive, the other constructive. The destructive movement is at first a continuation and development of the conflicts that had begun even during the Middle Age between the various elements of the Feudal-Catholic system. The victory of the Temporal power over the Spiritual, already in prospect at the end of the thirteenth century, was everywhere consummated by the end of the fourteenth. The Popes, degraded by the Avignon "captivity" (1305-1376), and afterwards still further weakened by the Great Schism (1378-1417), lose the international presidency of the West, and devote themselves to increasing their territories in Italy. The one Catholic Church is virtually split up into several National Churches, the clergy of which find that they have exchanged the distant and occasional oppression of the Popes for the close and constant control of their own sovereigns. The organisation of the Church having been thus crippled, it was not long before its doctrine was attacked by the free-thinking spirit. This at first took the shape of Protestantism. With some of the populations which had not been directly incorporated by Ancient Rome (English, Dutch, Scandinavian, and North German), Protestantism became the national religion. In others of these (South Germany, Poland, Hungary), and in the whole of Latin Europe, Catholicism remained officially established. But in Catholic and Protestant countries alike (Spain excepted) the negative or sceptical spirit continued to grow and attack one institution and doctrine after another, without having any positive truth to substitute for what was discredited. The first Reformers, while discarding the authority of the Church, thought to anchor themselves on the Bible; but the new position was much more vulnerable and untenable than the old one. Those who perceived its defects retreated upon Deism or "Natural Religion," which was the secret or avowed creed of the leading thinkers of the eighteenth century. But even the bare belief in a God was already held doubtingly or rejected. Beyond this point negativism could not go. If it was not more widely spread, it was because the mass of the population was as yet grossly ignorant and many even of the more educated shrank from probing doctrines which they felt were a support to social order.

During the Middle Ages the chief characteristic of the Temporal

Power was its infinite dispersion. It was Local Government or Home Rule carried to the furthest point. Even the nominal rights and functions of the central or national power were small, and, in practice, they were much smaller. By the end of the thirteenth century there were many signs that this dispersive system was about to be superseded by government on a large scale and of a more highly organised kind. During the fourteenth and fifteenth centuries this change was going on. The Temporal Power became stronger in proportion as it ceased to be divided against itself by the conflict between its central and local forms. It was further strengthened by its victory over the Spiritual Power. For the first time since the fall of the Roman Empire the State became again supreme, all other powers bending to it. But in the Temporal, as in the Spiritual order, dissolving influences were at work. The great change from Military to Industrial civilisation, which is not yet completely accomplished, was in progress, though it was not discerned then as it is now. The Industrial movement had begun during the Middle Age by the conversion of slaves into serfs, and of serfs into free labourers, "the greatest Temporal Revolution," says Comte, "ever experienced by mankind." It continued to be revolutionary; for, as the political governments retained their old military character, the influence of industry—which is essentially pacific—could not but undermine them. Again, the dissolving tendency of speculation was not confined to religious belief; it also weakened the basis of government. The doctrine of the Right of Private Judgment gave birth to its two complementary doctrines—the Sovereignty of the People and Social Equality.

Alongside of this *destructive* movement in the fields of religion and politics, which tended to pure anarchy and eventually produced the explosion of the French Revolution, there was going on a *constructive* movement, destined, at a time not yet reached, to reorganise society on a firm basis. This constructive movement, or rather the preparation for construction, consisted in the growth of Positive Science; but, until the extension of scientific methods to Politics and Morals in the nineteenth century by Comte, the simpler and more general sciences were pursued separately, and could not be co-ordinated with each other. Moreover, by a fatality which could not be helped, the progress of this constructive movement was much slower than that of the destructive. If the former could have outstripped or even kept pace with the latter, the explosion might have been averted, and the West might have passed without any crisis into its final normal state, in which Thought will be not Theological or Metaphysical, but Positive; and Activity not Military, but Industrial. But as this was impossible, Europe during the last six centuries has been gradually approaching anarchy, and during the last three generations at an accelerated speed. On the other hand, we have the reassuring fact that since the early part of the nineteenth century, when Politics and Morals were at last constituted

as sciences, the constructive movement has also been proceeding with a rapidity before unknown. We may hope, therefore, that it will overtake and arrest the destructive movement before the latter has produced any irretrievable disaster.

In the meantime, while progress was being worked out by this twofold process—(1) the destruction of the old theological beliefs and military organisation, and (2) the preparation of the Positive synthesis and the industrial *régime*—order was maintained by the various State Governments. They were the only element of the Feudal Catholic system left standing at the end of the fifteenth century. The struggle between the central and local authorities having come to an end, and the Church having been subjugated, the State Government was no longer checked by any rival power. It had become what Comte calls a "Dictature." The different forms which it took in France and England will be described in the lives of Louis XI. and Cromwell. But, whatever its form, it retained the traces of its military origin. It did not aspire, and it was not fit, to direct the industrial movement, though the wiser dictators did something to encourage it. The Dictature, therefore, could only exist as a temporary stop-gap till the new Temporal Power of the future should be ready to take its place. In the meantime, its provisional office was to maintain national order and allow free play to intellectual and industrial progress.

The twelfth month commemorates some of the most representative types of this modern statesmanship, with its limited aims, its study of material prosperity, its subordination of Church and Aristocracy to the State, its tendency to tolerate all forms of speculation. The principal type is naturally to be sought in the eighteenth century, by which time the Dictatures had everywhere completed the subjugation of the opposing forces, and were most powerful for good or for evil. Frederick the Great, therefore, gives his name to the month of "Modern Statesmanship."

In the list of subordinate types two significant omissions will be noticed. All attempts at dictatorial concentration in Germany before the eighteenth century were failures, owing to her second-hand and imperfect Romanisation, to her frontier position (involving exposure to barbarian invasions and the prolongation of militarism), to the imperial title, with its train of illusions and disasters, and lastly to religious bigotry. Hence the belated German dictature, only born on the eve of the revolutionary crisis, is represented in the month of "Modern Statesmanship" by Frederick alone. England, again, is not represented till we arrive at the week of Cromwell, because her dictature always tended to the exceptional aristocratic type, and this was not fully realised till the fall of the Stuarts.

The worthies of the first week are all Italian, Spanish, or French statesmen of the fourteenth, fifteenth, and sixteenth centuries. They helped to establish in their respective countries the normal or monarchical type of dictature, combining in itself the political

forces which had previously been dispersed, and adding thereto whatever of quasi-spiritual power could be detached from the Papacy. At their head stands Louis XI., the chief founder of the dictature in the central nation. Sixtus V., of course, figures here as a statesman ; and Charles V. as representing Spain.

The seven worthies of the second week lie between the middle of the sixteenth and the end of the seventeenth centuries—the period of the religious wars. They are all Protestants except L'Hôpital, who was no doubt at heart a Protestant ; none of them, however, bigoted Protestants, but distinguished advocates of toleration, who looked at creeds from the political point of view. Five of the seven are Dutchmen, and this week of Religious Liberty is named after its foremost champion, William the Silent.

The twelve statesmen of the third week are spread over the sixteenth, seventeenth, and eighteenth centuries. They are organisers, administrators, financiers ; they enforce order, foster industry, and develop national resources. If some of them were also concerned with war, they are not placed here on that ground. The very militarism of the dictatorial governments led them to encourage industry as a means of raising the revenue which the increased expense of war required (*Phil. Pos.* vi. pp. 118-128 ; *Pos. Pol.* iii. 488). Richelieu gives his name to the week of Great Ministers.

The fourth week is devoted to statesmen of the seventeenth and eighteenth centuries who played a part in revolutions : driven to this course by the circumstances in which they were placed, but none of them men of the revolutionary temper. Several of them, under other circumstances, would evidently have shown themselves strong conservatives. The head of this week is Cromwell. None of the men of the French Revolution are admitted : not even Danton, though Comte expresses the highest admiration of him.

[E. S. B.]

FREDERICK II. (*of Prussia*), b. 1712, d. 1786.

The Peace of Westphalia (1648) left Germany divided among some three hundred rulers, with different titles, loosely united under the Emperor, but all virtually independent sovereigns in their own territories. Thus finally ceased the long series of attempts by the Emperors to establish the dictature for Germany as a whole. But its rise in the separate German States became possible. Most of these petty rulers aped as well as they could the dissolute splendours of Versailles and treated their subjects like cattle. The sentiment of German nationalism now so strong had little or no existence then even as an aspiration.

FREDERICK at his accession (1740) found himself, next to the Emperor, the most important German sovereign: not so much by the number of his subjects—for they were only two millions and a half—as by the possession of an excellent army of 80,000 men. This had been created by his father Frederick-William I., a good drill-sergeant and careful manager, but a dull, obstinate man, with a violent temper. He forced Frederick against the grain to go through a strict training in military administration and economic details very valuable for a working king. But the tyrannical attempt, carried out with disgusting harshness and cruelty, to crush out all that was original in the bright young man, his enthusiasm for free thought, his refined tastes, his love of literature and music, his admiration of the French philosophers, and to mould his fine mind and character to the coarse and narrow paternal type, could not but injure him. It accustomed him to conceal his feelings and to wear a mask of hardness and cynicism. He himself in later life dropped what was probably a true remark, that he suffered more than other men because he had more feeling than others.

Coming to the throne at the age of 28, Frederick had already formed his plan of life. He would keep what was best in his father's ways of government but follow a nobler ideal. The sense of duty was firmly implanted in him. "My great care," he said to his officials, "will be to further the country's wellbeing, and to make every one of my subjects contented and happy. My will is not that you strive to enrich me by vexation of my subjects, but rather that you aim steadily as well towards the advantage of the country as my particular interest; for I make no distinction between these two objects. If it ever chance that my particular interest and the general good of my countries should seen to conflict, let the latter always be preferred." Many reforms were immediately introduced and many more projected. Judicial torture, then universal on the Continent, was abolished. Religious toleration was proclaimed; "every one is to be allowed to get to heaven in his own way." Freedom of the press was allowed; not by law but—what is more valuable—in practice. In his enthusiasm for light and culture he was bent on getting Voltaire and other eminent writers or thinkers around him. "A man that seeks truth and loves it must be reckoned precious in every human society." All this was very original, and turned the eyes of all Europe upon him. If he had not become involved in war, it is difficult to imagine what an approach to an ideal government might have been made under a ruler so nobly gifted in mind and character.

But on the death of the Emperor, Charles VI., the temptation to snatch Silesia from his daughter Maria Theresa was too strong. This cost Frederick three great wars (1740-42, 1744-45, 1756-62). The last of these was the famous Seven Years' War, in which he was assailed by France, Austria, and Russia together. The unparalleled odds make this the most extraordinary of all wars. As a general

though he committed faults of audacity and obstinacy, Frederick ranks among the three or four greatest in history, and, if his small means be considered, was more wonderful than any of them. But his military qualities are his least title to fame, and nothing more shall be said of them here.

No man hated war more. He admits, with his usual frankness, that what tempted him to seize Silesia was "an army lying ready for action, funds, supplies all found, and perhaps the desire of making oneself a name." But his first experience of such glory cured him for ever of the taste for it. What he had once taken, indeed—and taken with the good-will of most Silesians—he stuck to with unconquerable tenacity, resolute to perish rather than yield an inch. But he all along thirsted intensely for peace; and as he did not abate his claims in adversity, so neither did he enlarge them in victory. When he was at peace—which, be it noted, was more than thirty-six years out of the forty-six of his reign—he was incessantly occupied with administering his kingdom in the most enlightened, economical, and beneficent way. Closely supervising every branch of the public service, he kept every one up to his work. The minuteness with which he inspected everything is almost incredible. His own expenses were cut down to a minimum. He lived generally not in his palaces, but in his cottage of Sans Souci, and so completely without parade that we hear of a strolling tourist looking through a door and seeing the King asleep. His subjects regarded him with reverent affection. As he grew old and prematurely feeble from the hardships of his campaigns, though going through his work with stoical endurance to the last, we read that tears came into the eyes of many when he rode through the streets at the thought that he could not last long.

Shall we not say that this was a true republican government? For what is the republican ideal? Not this or that system of suffrage, or any peculiar mode of electing your magistrate; but that the government, however chosen, should practically be the organ of the nation and direct all its forces to the common welfare. There was here no Parliament. No; nor did any one dream of it. They only contrasted their position with that of other European States, equally without parliaments, where the people were treated as merely existing to provide for the pleasure and vices of their rulers. That glimpse of good government which Frederick afforded, that spectacle of a great man working like a galley-slave for the welfare of his fellow-citizens, was not the least among the impulses that led to the French Revolution.

Frederick's anxiety to preserve the European peace led him to keep up an active and careful diplomacy. "If I were King of France, I would not allow a shot to be fired in Europe." He knew better than to preach or practise non-intervention. In his old age he had to take the field against the Emperor, Joseph II., whose ambition was troubling Germany. But he managed, without a

pitched battle, to secure the maintenance of the *status quo*. If he joined in and even suggested the first—and least considerable—partition of Poland, it was not for the sake of enlarging his own dominions, but in order to prevent an otherwise inevitable war between Russia and Austria. The little bit of Poland called West Prussia, which he took as his share, is not to be confounded with the much larger slice, Posen, taken by his successor at the second partition (1795). West Prussia cut his dominions in two. Poles had conquered it from Germans three centuries before (1466), but it was still full of German colonies. The inhabitants benefited enormously by the transfer. The partition is not to be justified. Frederick should have weighed the evil consequences of the precedent. But as to his own share, the extenuating circumstances were considerable.

Comte extols Frederick as "a practical genius, who, in political capacity came nearest to Cæsar and Charlemagne; a dictator who furnishes the best model of modern statesmanship; who, in accordance with the ideal of Hobbes, reconciled power and liberty" (*Pos. Pol.* iii. 498). Frederick recognised the difference between the spiritual and temporal powers as few politicians, radical or reactionary, do now. He kept to his own sphere. With no belief in God or a future life, he is a precious and shining example of what purely human motives can effect, when they are not weighted and warped by the rival claims of an imaginary object of love and adoration. [E. S. B.]

The ruin caused and the atrocities committed by the Hohenzollern dynasty and the Prussian Stratocracy since 1870 make it right to remind readers of the reasons for which Auguste Comte gave this place in his Calendar to the King. He was the chief and far the ablest of those rulers and ministers who in the latter part of the 18th century sought to work out a peaceful revolution by an internal reform of government from above. His kingdom was by far the earliest to be modernised in all Europe. The extraordinary results achieved by Frederick in the petty kingdom he inherited and its lasting effects in Prussian ascendancy prove his administrative genius, however arbitrary in form to our eyes. Of the forty-six years of his reign, ten only were engaged in war; and his own people revered him as a hero—not as a tyrant. Like our Cromwell he has been made responsible for crimes of which he was not the author, and for acts done after his decease. This Calendar, as is the entire Positivist scheme of history, is *relative* in its judgments, especially of politicians; and it has to weigh the evil deeds and bad motives of statesmen against the permanent effects they left to their successors. [F. H., 1920.]

Carlyle: *Life of Frederick the Great*. W. F. Reddaway: *Frederick the Great*, 1904. H. de Catt: *Frederick the Great*, Eng. trans., 1916. N. Young: *The Life of Frederick the Great*, 1919. But all these, whether friendly, like Carlyle, or hostile,

like Young, deal chiefly with Frederick at war, and only slightly with the long years of peace. See also, J. Morley: *Voltaire*; and G. O. Trevelyan: *The American Revolution*, part iii. pp. 467-474; *George III. and Charles Fox*, vol. ii. p. 67. Frederick is buried in the Garrison Church at Potsdam. Portrait by Pesne; by Cunningham.

MARIA DE MOLINA, d. 1321.

Sancho IV., King of Castile, at his death (1295) appointed his widow MARIA DE MOLINA regent for his son Ferdinand IV., then nine years old. In the midst of the greatest difficulties she acted with remarkable prudence and courage, and, notwithstanding the concerted attempts of the neighbouring sovereigns, the princes of the blood, and the turbulent nobles to dismember the kingdom, she succeeded in preserving it for her son till he came of age. After his premature death (1312) she was appointed guardian of his infant son, Alfonso XI., and continued in that capacity to give proof of her eminent qualities till her death. [E. S. B.]

Modesto Lafuente: *Historia General de España*, vol. vi. U. R. Burke: *Hist. of Spain*. The Queen is buried at Valladolid, in the Church of Santa Ana, formerly belonging to a Franciscan Sisterhood, which she founded there.

COSMO DE' MEDICI THE ELDER, b. 1389, d. 1464.

Italy in the 14th and 15th centuries presents a very different spectacle from Europe north of the Alps. There was an extraordinary precocity—intellectual, political, social, and industrial. In the north and centre were numerous cities which, though once nominally subject to the German Emperor, had been practically, except at rare intervals, independent States since the 10th century. Both internally and in their mutual relations they would, but for the absence of slavery, bear a striking resemblance to Ancient Greece. Sometimes they were aristocratic or democratic commonwealths; at other times they fell under the sway of despots. They were constantly torn by factions; and their wars with one another, latterly waged by means of mercenaries, were incessant. Yet they were busy hives of commerce and manufacture, and in their rural districts agriculture was carried to high perfection.

Of all these cities "admirable Florence" (*Phil. Pos.* vi. 75), though not always the most powerful, was the most distinguished, not only for her immortal æsthetic productions and the general culture of her people, but for her public spirit, her love of free institutions, and her generous efforts to support them in other cities. She reminds us of Athens in her best days, and COSIMO DEI MEDICI bears no small resemblance to Pericles. His great wealth, derived from banking and commerce, was largely devoted to public purposes and to relieving the wants of his poorer fellow-citizens. Although he was once banished, and narrowly escaped capital punishment, he was for the greater part of his life the virtual ruler

of Florence. The constitution was highly democratic; but this did not prevent Cosmo or his friends from being generally in office. Prudence was his chief characteristic, and he showed it both in his successful administration, and in the moderation and absence of ostentation which marked his life. He is famous as a munificent and enlightened patron of literature and art; but he is placed in the Calendar as "having furnished even thus early a worthy type of the industrial patriciat; showing by his conduct that pacific activity might go along with the completest social devotion, and even with profound aptitude for civil government." (*Pos. Pol.* iii. 462.) His fellow-citizens decreed him the title of "Father of his Country," and inscribed it on his tomb. [E. S. B.]

W. Roscoe: *Life of Lorenzo de' Medici*, ch. i. T. B. Macaulay: *Essay on Machiavelli*. Machiavelli: *Hist. of Florence* (Eng. trans., ed. by H. Morley). J. C. L. Sismondi: *Hist. of the Italian Republics* (Eng. trans.). Cosmo's tomb is in the church of San Lorenzo, Florence. Portrait in family group, "The Adoration of the Magi," by Botticelll, F. (painted two years after Cosmo's death).

PHILIPPE DE COMINES, b. 1445, d. 1509.

COMINES was a noble of the district of Ypres, in West Flanders, and therefore a subject of Charles the Bold. He entered the service of Charles at the age of 19, and was with him at Montlhéry (see LOUIS XI.). At the interview of Péronne (1468), he rendered LOUIS XI. great service by his secret advice. Four years later he quitted the service of Charles for that of the French king, who, when he had found an able and trustworthy man, never rested till he had gained him. Comines, for his part, could have neither regard nor respect for a hot-headed, violent glory-hunter like Charles. He at once became and remained to the last the most trusted agent of Louis, who employed him chiefly in diplomacy. In the next reign, having opposed the Regent, he was for some time imprisoned in an iron cage, and mulcted of a fourth of his property. Some years later recourse was again had to his great ability and experience, and he accompanied Charles VIII. on his Italian expedition, fighting by his side at Fornovo (1495). He complains, however, that his advice was often neglected. After his return from Italy he wrote his famous *Memoirs*, one of those books that will never cease to be read. Its remarkable literary merit is the least part of its value. It is the work of a practical statesman, thoroughly acquanted with the men and the facts of his time, and judging them thoughtfully and dispassionately. To modern readers its tone must appear cynical. We must remember that Comines was a man of his time, and it was the time of Louis XI., Ferdinand of Aragon, Henry VII., and Machiavelli, when the complete divorce between morality and politics made hypocrisy unmeaning. There is nothing sentimental or enthusiastic about Comines. Prudence and firmness are to him synonymous with virtue. Passion, weakness, and folly move him to pity or disgust. He approves of justice,

good faith, and moderation rather as conducing to good and successful government than for their own sake. The interest of the State legitimates every means. He believes that God rewards and punishes, but religion is no spring of action with him. His motives and aims are strictly human. Louis XI., whose character and actions he judges with perfect impartiality and much discrimination, came nearer to his ideal of a wise and good ruler than any one else he had known, and he regarded him with a respect and admiration almost approaching to affection. As he appears to have been the only person who had any warm feeling for that great king, we obtain some measure of his own superiority. [E. S. B.]

Comines: *Mémoires*, in Positivist Library. He was buried in the Church of the Augustinian Canons (Paris), now destroyed; his monument is in the Louvre.

GUICCIARDINI (*Francesco*), b. 1482, d. 1540.

In the first half of the 16th century, Italy became the battlefield of French, Spaniards, and Germans, and the pugnacious but unwarlike city-states lost their independence. Florence, which had expelled the unworthy and unpatriotic descendants of Cosmo de' Medici in 1494, was compelled by a Spanish army to receive their yoke again in 1512. Two of the family became Popes—Leo X. and Clement VII. GUICCIARDINI, a Florentine lawyer, who before the restoration of the Medici had rendered his country valuable service as a diplomatist, was employed by these Popes, and showed high ability and inflexible firmness, both as a general, and as governor of the Romagna. After the death of Clement VII., in 1534, he left the Papal service and occupied himself with the politics of his native city, as a supporter of the Medici. When the contemptible Duke Alexander de' Medici was assassinated (1537), Guicciardini had a chief share in preventing the re-establishment of the Commonwealth, and in promoting the succession of Cosmo de' Medici (afterwards Grand Duke of Tuscany), under whom Florence finally lost the last vestige of her liberties, though she attained an extraordinary degree of material prosperity. Guicciardini's *History of Italy*, from 1494 to 1532, once much admired, is now consulted rather than read. Montaigne, while highly praising its veracity, remarks that it uniformly ignores virtue, religion, and conscience as springs of human action. [E. S. B.]

P. L. Ginguéné: *Histoire Littéraire d'Italie*, vol. viii. J. Morley: *Miscellanies*, 4th Series. Guicciardini is buried in the Church of Santa Felicità, Florence. Portrait, F.

ISABELLA OF CASTILE, b. 1451, d. 1504.

The marriage of Ferdinand, King of Aragon, with ISABELLA, Queen of Castile and Leon, followed by the conquest of Granada and Navarre, amounted virtually to the unification of Spain, which

at once became a leading power in Europe. Though Ferdinand bore the title of King of Castile during his wife's life, and all acts were done in the name of "the Sovereigns," the supreme power, in substance as well as form, was reserved to Isabella, and was up to her death exercised by her according to her own independent will. Foreign policy she left to Ferdinand. In fact, it concerned Aragon more than Castile. Isabella possessed great political capacity, masculine energy, heroic courage, inflexible firmness, unwearied industry. These qualities were at the service of a most noble heart. In the statesmen of that time we are satisfied if we find enlightened patriotism, and that is the note of all the worthies in this week. But against Isabella it cannot be charged, as it may against the rest, that she ever sacrificed morality, as then understood by the best men, to policy. The broad principles of right, the sentiments of benevolence, pity, and generosity were always present to her. She combined in an extraordinary degree the tenderness and delicacy of a woman with the strong character of a man. She was eighteen when she married Ferdinand, and she became Queen of Castile on the death of her brother five years later (1474). Castile had long been in a state of anarchy. Isabella's ideas of government, like those of all great rulers in the 14th and 15th centuries, consisted in reducing the power of the nobles, strengthening the royal authority, giving purity, vigour, and uniformity to the administration of justice, extending the realm to its natural boundaries, promoting material prosperity, and resisting Papal interference. Granada, the last of the Moorish kingdoms in the Peninsula, was conquered; an efficient police put an end to brigandage; the laws were codified; castles were dismantled. To all these matters Isabella attended in person. All her journeys were made on horseback, even during pregnancy. In the Moorish wars she sometimes appeared in armour at the head of her troops. It will ever be one of her chief titles to glory that she furnished Columbus with the means for his great enterprise when no one else would listen to him. Ferdinand, her husband, was one of the ablest statesmen of his time, subtle of brain, prompt and undaunted in execution, and a gallant soldier.

> My father, King of Spain, was reckoned one
> The wisest prince that there had reigned by many
> A year before.
>
> Shakespeare, *Henry VIII.* ii. 4.

The unbroken harmony of such a pair during thirty-five years of married life, under such peculiar circumstances, is remarkable; and the more so as Ferdinand was not always a faithful husband. But Isabella's affection bore that pain in patience; and her language about him in her will, written three days before her death, is all love and admiration. When that magnanimous spirit and thoroughly honest mind is no longer with him, he becomes a distinctly poorer figure—not less successful, but less to be respected. Isabella has been compared to Elizabeth of England. But, to say nothing of her superiority as a wife and a mother, there is no single quality

in which she did not outshine Elizabeth. The one crime of her reign is her treatment of Jews, Mahometans, and heretics. The blame for that must fall on her religious guides. [E. S. B.]

W. H. Prescott: *Ferdinand and Isabella.* W. Irving: *The Conquest of Granada.* M. A. S. Hume: *Spain, Its Greatness and Decay.* She is buried in Granada Cathedral. Portrait, Royal Palace, Madrid.

CHARLES V., b. 1500, d. 1558.

From his father Philip (son of the Emperor Maximilian I. and Mary of Burgundy), CHARLES inherited the Hapsburg dominions, Franche Comté, and the Netherlands; in the right of his mother Juana (daughter of Ferdinand and Isabella) he ruled Spain, Naples, Sicily, Sardinia, and the Spanish conquests in the New World. In 1519 he was elected Emperor on the death of his grandfather Maximilian. No such aggregation of territories, nor anything approaching to it, had been seen in Europe since Charlemagne; and it must be remembered that the European state-system in the 16th century embraced a far smaller area than it does now, Russia proper and the Turkish dominions being politically outside of it. Charles was a man of great ability, both as a statesman and a general, cautious in council, resolute in action, and an excellent judge of men. He was occupied throughout his reign with wars, many of which he conducted in person. The defence of the West against the Turks, then most formidable both by land and sea, devolved upon him, and he discharged his duty well. But his military efforts were chiefly directed towards making himself master of Europe. The Spanish soldiers were then the best, and no country furnished such revenues as the Netherlands. But the power of Charles was not so overwhelming as might be supposed from the extent of his dominions. France also was warlike and rich; and her compactness, central position, and dictatorial organisation enabled her to maintain successfully the balance of power, a principle then first recognised as the only available guarantee for the liberties of Europe. Though Francis I. fought many battles in Italy, and his son Henry II. wrested the French-speaking districts of Metz, Toul, and Verdun from the German Empire, the wars of those kings against Charles were essentially defensive and legitimate. (*Phil. Pos.* v. p. 440). To the Lutheran movement Charles was hostile, both as being generally subversive and as tending to make the princes and cities of the Empire more independent of its head. Unity of religion appeared to him—as to every one else at that time—indispensable. What the doctrines should be was in his eyes of minor importance. Accordingly he procured the convocation of the Council of Trent (1545-1563), in the hope that some compromise could be effected between the Pope and the Lutherans. When the latter refused to take part in it, and, under the name of the Schmalkaldic League, stood on their defence, he crushed them at the battle of Mühlberg (1547).

But this assertion of the Imperial authority alarmed even the Catholic Princes, and they joined Maurice of Saxony in compelling Charles to accept the Treaty of Passau and the "Religious Peace" of Augsberg (1555), which gave to each prince the right to determine the religion in his own dominions. Disheartened by this collapse of his policy and by his failure to recapture Metz from the French, Charles soon afterwards resigned the Empire and Hapsburg hereditary States to his brother Ferdinand, and the rest of his dominions to his son Philip II. (1555-6), and retired to the monastery of Yuste in Spain, where he died two years later. In that country and the Netherlands his efforts to establish a strong centralised government had been more successful. Though he was undoubtedly a sincere and even bigoted Catholic, he was no less resolute than Henry VIII. of England in subordinating the Church to the State. He even made war upon Pope Clement VII., and held him in captivity; and, while he was burning Protestants in Spain and the Netherlands, he provided chaplains of their own religion for his Protestant troops. Charles is not a very admirable specimen of modern statesmanship; but he was far too important to be omitted from a list of its most characteristic types. [E. S. B.]

W. Robertson: *Charles V.* Ranke: *German History in the Time of the Reformation* (translated by Mrs. Austin as far as 1543). Charles is buried in the Escorial. Portraits by Titian, Prado, Madrid.

SIXTUS V. (*Felice Peretti*), b. 1521, d. 1590.

SIXTUS V. had been a shepherd boy. He was elected Pope in 1585. The well-known story of his feigned decrepitude does not bear examination. He found the Papal territory overrun with brigands, Rome itself filled with audacious outlaws, the treasury empty, the taxes unpaid. He re-established order by merciless executions for small crimes as well as great. "While I live," said he, "every criminal must die." Heads on poles were to be seen everywhere. Before nine months had passed the banditti were exterminated. Partly by frugality—the expense of his own table was limited to three shillings a day—partly by less wise and less justifiable means, he soon amassed a large treasure, which he hoarded for extraordinary emergencies of his government or of the Church. He is most remembered now for his magnificent public works, the Acqua Felice, which still supplies Rome with water, the cupola of St. Peter's, and the Lateran Palace. But he altered or destroyed many of the antiquities which the Renascence had lovingly preserved. Though zealous for the extirpation of heresy, it was with regret that he found himself countenancing Catholic rebels against Protestant sovereigns. He could not but support the League and Philip II. of Spain against Henry of Navarre; but he felt that the League was aiming at anarchy, and that Philip was menacing the Balance of Power in Europe. Henry, with his usual penetration

and freedom from prejudice, perfectly comprehended the perplexity of Sixtus, and upon hearing of his sudden death exclaimed, "Here is a trick of Spanish policy; I have lost a Pope who was my all."

[E. S. B.]

Ranke: *History of the Popes*, bk. iv. and vi. Sixtus is buried in the Church of Santa Maria Maggiore, Rome. Portrait, F.

HENRI IV., b. 1553, d. 1610.

Navarre south of the Pyrenees was annexed to Castile in 1513. HENRY, at the age of 19, became King of the small remnant north of the Pyrenees by the death of his mother, Queen Jeanne, ten weeks before the massacre of St. Bartholomew (1572). He was then at Paris, and only avoided the fate of the other Huguenot leaders by abjuring his religion. In 1576 he escaped to the south of France, where, in addition to his little kingdom, he had large domains, and again changed his religion. The Huguenot nobles formed a brilliant cavalry, and at their head Henry performed many gallant exploits. But the large majority of the nation was Catholic, and the "Politiques," or party of toleration (see L'HÔPITAL) were overborne. Henry, therefore, was hard pressed. In 1588 Henry III., finding himself a mere puppet in the hands of the Catholic League, assassinated its leader, the Duc de Guise, and called the King of Navarre to his assistance. But the next year he was himself assassinated by the monk Clément. By his death the house of Valois became extinct, and the legitimate heir to the throne was Henry of Navarre, who, by his father, Antony of Bourbon, was twelfth in descent from Louis IX. But the League, backed by Philip II. of Spain, refused to recognise the heretic king, and a long uphill struggle was before him. He at first retreated into Normandy to await help from Elizabeth of England, and there won the victory of Arques against far superior numbers (1589). Next year the Leaguers, again with an overwhelming force, including cavalry sent by Philip II., gave him battle at Ivry. After skilfully drawing up his army (which consisted chiefly of "political" Catholics) Henry addressed his comrades in a stirring speech, ending with the famous words, "If you lose sight of your colours press after my white plume; you will always find it on the road to honour and victory;" and his desperate charge in fact decided the day. Then his voice was again heard, "Spare all Frenchmen, but down with the foreigners!" This glorious victory enabled him to besiege Paris, the stronghold of the League. But when the city was starving he let provisions pass in. "We must not turn Paris into a cemetery; I do not wish to reign over the dead"—and this while Philip's great general, Alexander of Parma, was marching in from the Netherlands (where he was fighting the revolted Dutch) to raise the siege. Convinced at last that the national unity would never be restored by a Huguenot king, he once more became a Catholic. "Paris," he said, "is

well worth a mass" (1593). Two years later the last Leaguers submitted, and in 1598 Philip II., then sinking into his grave, sullenly consented to the peace of Vervins. In the same year the memorable Edict of Nantes assured to the Protestants not only freedom of religion, but in many places even of public worship, with equal eligibility to all offices of State. Leaguers and Huguenots alike had been headed by great nobles, who saw in religious discord an opportunity for undoing the work of Louis XI. Even democracy had raised its head in Paris. Henry was perhaps the least vindictive and most humane ruler that ever sat on a throne. He had conquered his enemies as much by his mercy and generosity as by the sword. But magnates who now thwarted the revival of a strong central government, and conspired with foreigners against the national unity, were vigorously put down. The Protestant Duc de Bouillon was forced to humble himself; and the execution of the Catholic Duc de Biron was a lesson that surprised as much as it daunted the aristocracy. The great financial and economic improvements will be touched on in the life of Sully. "French industry," says Michelet, "dates from this reign." But it is in his large views of European policy that Henry is greatest. Although his "Great Design" first appeared in the posthumous and less reliable part of Sully's *Mémoires*, there is no reason to doubt that some such ideal was in the King's mind. Europe was to be a federal "Republic," composed of some fifteen independent States, some of them monarchies, others commonwealths, with a permanent council of commissioners from all the States, and an elective Emperor as President. Russia and Turkey were to be excluded as not really European. Religion was to be ordered to suit the circumstances of each State. The first step towards this "admirable Utopia of peace" (*Pos. Pol.* iv. 266) was to clip the wings of the house of Austria, which, though divided, still overshadowed Europe with the dread of a universal monarchy. Henry had formed a league with the Protestant Princes of Germany for this purpose, and was just about to take the command of his army, when the knife of Ravaillac prematurely cut short his great career. The crime was evidently committed in the interest of Spain and the Jesuits, though it was never brought home to the instigators. Henry's countrymen did not generally recognise his great value till they had lost him; but the memory of few kings has been so honoured and cherished by posterity. [E. S. B.]

Sully: *Mémoires*. A. Poirson: *Règne de Henri IV.* E. S. Beesly: *Queen Elizabeth*. He was buried at St. Denis. Portrait by F. Porbus le jeune, L.; by Rubens in a series of scenes, L. (drawings of three of these, W.).

LOUIS XI., b. 1423, d. 1483.

During the Middle Age there was a constant struggle in the West between the two elements of the Temporal Power—the central, or national, and the local, or that of the great vassals. Gradually the

local governments all merged in large aggregates, in each of which a single national government gathered to itself all military, civil, and judicial functions. This movement was already in progress before the end of the 13th century. By the end of the 15th the struggle was substantially decided, though it did not come completely to an end till the latter part of the 17th century.

In France, as in most countries, the agent in this organising and nationalising movement was the Crown. Almost every monarch did something towards enforcing recognition of the royal authority in all parts of that country which by geographical conditions, as well as by its history, was fitted for political unity. But, either because they did not see their way to undertaking the direct government of so large an area, or because they were themselves under the dominion of feudal ideas, they did not always avail themselves of their frequent opportunities for extinguishing the local governments of the fiefs which fell into their hands. The Valois kings granted many of them as appanages to their younger sons, and so created a new set of great vassals, who revived the struggle for feudal independence. The most dangerous of these, the Duke of Burgundy, openly aided the English invaders. This prince, besides his French fiefs, possessed the yet more important territories now known as Belgium and the Netherlands. Charles VII., the father of LOUIS XI., having expelled the English, established a permanent force of 9000 cavalry—the first standing army in modern times.

During the life of his father, Louis was not a dutiful subject. His masterful spirit could brook no superior. He even conspired with the rebel vassals. But as King (1461-1483) he pursued the policy of his greatest predecessors with undaunted courage, patient perseverance, and political genius of the highest order. At first he was too much in a hurry. He tried to clip the wings of all his vassals at once. He irritated the industrial classes by severe taxation. He drove into exile or rebellion his father's ablest generals and councillors. This brought upon him the so-called "League of Public Welfare," headed by Charles the Bold, heir of Burgundy, which aimed at a virtual dismemberment of France. Persevering as Louis was, he had none of the weak obstinacy which cannot distinguish between means and ends. Finding himself overmatched, though he had cut his way through the host of rebels at Montlhéry, he conceded to them everything they demanded. By the treaty of Conflans (1465) he might seem to have flung up the game in despair and to have signed the ruin of France. But his High Court of Justice (*Parlement*), by refusing to register the treaty, gave him an excuse for evading its performance, and by negotiating with the princes separately he broke up their coalition. The peaceful and industrious classes stood by him, and he studiously cared for their interests, mixing familiarly with the citizens of Paris, dining at their houses, standing godfather to their children, putting aside all state and ceremony, and even dressing in humble attire. The precautions of

his residence at Plessis belong only to the last months of his life, when he was old and paralytic. Never ashamed to own a mistake and to retrace false steps, he won back the most valuable of his father's servants, whom he had at first driven away. His designs against feudalism were not for a moment suspended. But instead of attacking all his vassals at once he took them in detail: while one was being crushed, others were humoured till their turn came.

As a young man he had shown warlike tastes and brilliant personal valour; but as King he always preferred negotiation and policy. It was a too daring confidence in his mastery of these weapons which led him to risk his famous visit to Charles the Bold at Péronne (1468), so vividly painted by Scott in *Quentin Durward*, who, however, omits to mention the written safe-conduct, which Charles basely violated. At such critical moments Louis's nerve became steadiest and his intellect most acute. The concessions exhorted from him at Péronne seemed to undo the work of years; but when once he was free he found means to remedy all the mischief that had been done. "Never," says his Minister Comines, "was there a man so sagacious in adversity; when he drew back it was to make a longer spring." In another war with Burgundy, Edward IV. of England landed with a large army (1475). To warlike nobles it seemed very base that Louis bought off the invaders instead of rushing upon another Crecy or Agincourt; but he thoroughly despised such criticism. He had an army, and a good one; but if a round sum of money would effect his purpose more cheaply, surely and speedily, why should he expose his subjects to the horrors and losses of war? Two years later Charles fell at Nancy fighting against the Swiss, who were in the pay of Louis. It was the deathblow of Feudalism. Louis promptly seized the duchy of Burgundy and some other territories of the deceased Duke. Altogether, during his reign, he brought eleven provinces under the direct government of the Crown—Brittany being the only great fief which at his death remained independent. He had thus assured the unity of France and her preponderance in Europe.

Hardly less important services to his country were his establishment of order and good administration, his financial and judicial reforms, his encouragement of industry and commerce. "He effected," says Lavallée, "attempted, or projected all the innovations of modern France." Diplomacy, the modern makeshift for the international office of the mediæval Papacy, dates from him. Historians have dwelt on his cruelty, perfidy, and superstition. Turbulent nobles like St. Pol and Armagnac were brought to the block; treacherous Ministers like Cardinal la Balue were kept for years in iron cages; vulgar criminals swung from gibbets on every high road. But this severity towards ruffians of high and low degree, who had preyed on the country for the best part of the century, wrought peace and prosperity for the law-abiding and industrious. In the decay of Feudal manners and Catholic discipline

the sentiment of honour had almost vanished from public life. But, judged relatively to his times, Louis is not to be branded as perfidious. He did not scruple to break treaties contrary to the interests of his country, which had been extorted from him by force ; but he was more straightforward than his principal contemporaries. Twice when he could have got rid of Charles the Bold by acts of treachery, which in those days no one would have blamed, he chose the honourable course. To reproach a man of the 15th century with superstition, because he thought there might be some efficacy in images and relics, is an abuse of language. If he clung to life it was because he felt that so much of his projected work remained unfinished. He met death with remarkable fortitude, his thoughts and efforts being to the last moment occupied with the affairs not of his soul but of his country. His Minister and intimate friend, Comines, has left a faithful and judicious account of his life. Two great poets have dealt unfairly with him : Scott could not forgive the foe of Feudalism ; Hugo was blinded by democratic prejudices.

[E. S. B.]

Comines : *Mémoires*. Scott : *Quentin Durward*. Victor Hugo : *Notre Dame de Paris*. Louis was buried in Notre Dame, Clèry, Loiret. Portrait, N. G.

L'HÔPITAL (*Michel de*), b. 1504, d. 1573.

Born of a middle-class family, L'HÔPITAL rose to the dignity of Chancellor of France under Francis II. (1560). He was one of the earliest and most eminent of the "Politiques"—Catholics who during the religious wars treated the interests of the Church as subordinate to those of their country. They resisted the Spanish influence, and strove for toleration, national unity, and a strong government. Numerically weak at first, and detested by the fanatics, they gradually rallied to their party all that was good and sensible in France, and their policy at length triumphed with the conversion of Henry IV. and the publication of the Edict of Nantes. L'Hôpital died a few months after the Bartholomew Massacre, which seemed to be a deathblow to his hopes. He was a man of lofty character and unshaken firmness—a thoroughly great citizen. Though for political reasons he remained a Catholic, he was Protestant or sceptical at heart. Comte has therefore placed him in the week of Protestant statesmen. [E. S. B.]

Villemain : *Vie de l'Hôpital*, in his *Études d'Histoire Moderne*. Martin : *Histoire de France*, vol. ix. p. 43. L'Hôpital is buried in the Parish Church of Champmotteux, near Malesherbes. Portrait by Janet.

BARNEVELDT (*Johan van Olden-Barneveldt*), b. 1547, d. 1619.

If William the Silent laid the foundation of Dutch independence, the glory of completing it belongs mainly to BARNEVELDT, Advocate-General and Grand Pensionary, or salaried chief magistrate, of

Holland. In the early part of the war he did his duty bravely as a soldier. His political and diplomatic talents were of the highest order, and for thirty-four years from the murder of William (1584-1618) his influence with the States-General made him virtually ruler of the United Provinces. He persuaded them to appoint the second son of the Liberator, Maurice of Nassau, then a youth of 17, Stadtholder, a step which was justified by the great military capacity which the latter soon displayed. Barneveldt negotiated the twelve years' truce with Spain, which virtually terminated the War of Independence (1609). To Maurice, as a successful general who was aiming at sovereignty, this peace was distasteful. Barneveldt was a republican ; and he also sided with the Arminians, the party of religious toleration, having early in life adopted as his motto, "*Nil scire tutissima fides*"—("It is safest to believe that we know nothing"). Maurice therefore placed himself at the head of the Gomarites or fanatical Calvinists, and eventually procured that his virtuous and patriotic opponent should be condemned and beheaded, at the age of 72, on the ridiculous charge of favouring Spain and troubling the Church of God. [E. S. B.]

J. L. Motley : *History of the United Netherlands*, completed by his *Life and Death of John of Barneveldt*. His body was ultimately placed in his family vault at Amersfoort. Portrait by Mierevelt (copy, Municipal Mus., The Hague).

GUSTAVUS ADOLPHUS, b. 1594, d. 1632.

The decisive struggle between Catholic and Protestant in Germany, which had been postponed by the murder of Henry IV. (1610), broke out at last in 1618 as the "Thirty Years' War." After twelve years of fighting, the Catholic reaction was triumphant, and the Emperor Ferdinand II. seemed to be more master of Germany than even Charles V. had been after Mühlberg. Sweden had hitherto played no great part in Europe, but the successful wars of GUSTAVUS against Russia, Poland, and Denmark had drawn attention to his remarkable military genius. Not without a thirst for glory, and tasting the joy of battle like an ancient Viking, the Swedish monarch was yet more moved by a noble indignation at the horrible treatment of his German co-religionists by the army of brigands under the command of the famous Wallenstein. Encouraged by Richelieu, who promised him a subsidy, the "Lion of the North" landed in Pomerania with 15,000 men in the summer of 1630. The Protestant princes of North Germany were so cowed that he had to coerce them into co-operating with him, and it was not till the next year that he was able seriously to attack Ferdinand, who, yielding to the jealousy of the Catholic princes, had imprudently dismissed Wallenstein. In September 1631 the great victory of Leipsic (or Breitenfeld) over the renowned Tilly made the Swedish hero master of North Germany. Pressing on towards the Rhine, he beat Tilly again at Wurzburg, and the Spanish veterans at Oppenheim. Gustavus had abandoned the old

Spanish methods of war, hitherto supposed to be perfection. There was no going into winter quarters ; defensive armour was discarded ; cavalry were taught to charge home in masses, infantry to change formation with rapidity. Officers from all countries crowded to the Swedish camp as to a new school of arms. In April 1632 Gustavus invaded Bavaria, and at the passage of the Lech Tilly was defeated again and slain. Ferdinand, now trembling for Vienna, recalled Wallenstein, and the plundering ruffians from all quarters soon rallied to his standard. The war-tide rolled north again, and on November 16 was fought the memorable battle of Lützen. Wallenstein there suffered his first defeat ; but Gustavus, charging as was his wont at the head of his Swedes, was killed.

The Thirty Years' War was not yet half over (see OXENSTIERN), but that fourteen months from Leipsic to Lützen was the turning-point. Austrian sovereignty over Germany never again had a chance of realisation. The great deliverer was mourned not only in Saxon and Pomeranian homes, from which he had chased the robbers, ravishers, and cut-throats of orthodoxy, but far away over the sea, where Puritan squires and yeomen, chafing under the yoke of Laud and Strafford, had eagerly watched his victories. "Well," said Mr. Greatheart, "let them that are most afraid keep close to me." The story of Gustavus was surely present to Bunyan's mind when he drew the figure of his champion, so cheery, helpful, and tender, who "loved one greatly that he found to be a man of his hands," but devoted his prowess to the protection of the weak and the punishment of the cruel. Gustavus will always remain the typical hero. In the knight-errant we almost forget the clear-headed statesman. Of grand presence, towering stature, and mighty right arm, few horses could carry his weight. On his dead body were counted nine open wounds and thirteen old scars. [E. S. B.]

B. Chapman, J. L. Stevens : *Histories of Gustavus Adolphus*. Schiller : *Thirty Years' War*. S. R. Gardiner : *The Thirty Years' War*. Gustavus is buried in Ridderholms Kyrka, Stockholm. Portrait by Vandyke, Munich ; by Mierevelt.

DE WITT (*Johan de Witt*), b. 1632, d. 1672.

The constitution of the Seven United Provinces was republican, but not democratic ; the States-General consisting of deputies from the seven provincial assemblies, which again were composed of deputies from the oligarchical municipalities of the towns. These city oligarchies had an honourable record. Their fathers and grandfathers had been the backbone of the struggle against Spain, and they themselves had the virtues, if also some of the faults, of oligarchy. They were patriotic cultivated, enlightened, and in matters of religion tolerant. With them is associated all that makes the peculiar glory of the Dutch republic in its best days. They had reverenced and loyally supported William the Silent ; but they were deeply jealous of his able and ambitious descendants, who as Stadtholders

wielded a quasi-regal and virtually hereditary power. Barneveldt had headed this party earlier in the century. John DE WITT was its leader a generation later. The lower orders, ignorant, largely leavened by immigrants, and swayed by the most bigoted and intolerant Calvinistic preachers, supported the House of Orange. In 1650 William II., grandson of William the Silent, and Stadtholder of Holland, died, and during the minority of his posthumous son, afterwards William III. of England, the Stadtholderate was at first left in abeyance and then abolished. De Witt, as Grand Pensionary, administered the government with prudence, courage, and patriotism. He wisely desired alliance with France; but in the higher interest of the Balance of Power he formed, along with England and Sweden, the Triple Alliance, which imposed upon Louis XIV. the momentary check of the Peace of Aix-la-Chapelle (1668). Louis could not forgive this. Moreover, he hated Holland as the asylum of free thought. In 1672, having bought Charles II. of England, he poured his armies into the Low Countries. The Orangeists seized the opportunity of demanding that the young William should be made Stadtholder, and John de Witt and his noble brother Cornelius, falsely accused of betraying their country to France, were torn to pieces by the mob. William did not directly instigate this execrable act; but he connived at it and rewarded the perpetrators (see WILLIAM III., LOUIS XIV.). [E. S. B.]

A. Lefèvre Pontalis: *John de Witt*; translated by Stephenson. T. B. Macaulay: *Essay on Sir William Temple*. J. M. Robertson: *The Evolution of States*, ch. iv. De Witt is buried in the Nieuwe Kerk, The Hague. Portrait by J. de Baer, Amsterdam.

RUYTER (*Michael Adrianszoon De Ruyter*), b. 1607, d. 1676.

As long as the peace and freedom of Europe have no better guarantee than the rude and empirical one of the Balance of Power, it is important that the strength of one or more of the great States should be maritime rather than military. England has often abused her maritime strength; but without it what would have become of the Balance of Power in 1588, 1690, and 1805? RUYTER was the most famous of the great seamen who enabled the United Provinces, notwithstanding their insignificant territory, to render a similar service to Europe in the 17th century. His father, Adrian Michielszoon, a Flushing workman, had carried off his wife on horseback. This procured her the nickname of "de ruyter," or "the rider," which stuck to her son. Beginning life as a common sailor, he was made Admiral-in-Chief almost against his will; for, though the bravest of the brave, he hated fighting, and was happiest as captain of a merchant ship. In 1667, England having forced an unjust war on the Dutch, he sailed up the Thames, burned Chatham dockyard, and blockaded London for several weeks. He bore a glorious part in the heroic defence of his country against the combined French and English attack in 1672. Obnoxious to the

Orangeists as a friend of the illustrious brothers De Witt, he was sent to the Mediterranean, where he was killed in a battle with the French in 1676. He was a man of grand and simple character.

[E. S. B.]

De Liefde: *Great Dutch Admirals*. Ruyter's monument in the Nieuwe Kerk at Amsterdam occupies the place of the high altar. Portrait by F. Bol, Amsterdam.

WILLIAM III. (*William of Nassau, Prince of Orange*), b. 1650, d. 1702.

The one object steadily pursued by WILLIAM throughout his life was to reduce the immense military preponderance of France and to humble the overbearing ambition of Louis XIV., by which the independence of the other Western States was endangered. When the French army poured into the United Provinces in 1672, he was made Stadtholder at the age of 21 (see DE WITT). His stern resolution and heroic courage nerved his countrymen to the most desperate resistance. The dykes were opened, as in the time of his great-grandfather, William the Silent, and the country was laid under water. Preparations were even made for emigration *en masse* to the Dutch colonies in the Eastern Archipelago. At length Spain and Germany came to the rescue, and by the Peace of Nimeguen (1678) the Dutch emerged from the struggle with safety and honour.

In 1688 the anti-Protestant policy of James II. of England produced a momentary coalition between the Whig nobles and the Anglican clergy ; and William, who had married James's daughter, landed in England, by invitation, with a small army, and was placed on his father-in-law's throne. He valued this elevation chiefly as enabling him to enlist England in the alliance which he had been laboriously building up against France. In nine years of war Louis lost no battle of importance ; but the tide was evidently turning, and by the Peace of Ryswick (1697) he gave up all the conquests he had made since the Peace of Nimeguen and recognised William as King of England. Three years later (1700), when the intrigues of Louis had obtained the crown of Spain for his grandson, the Balance of Power was again in danger. "*Il n'y a plus de Pyrénées*," said Louis ; and William began skilfully and patiently to re-knit the threads of the Grand Alliance. Death, at the untimely age of 51, overtook him just as the War of the Spanish Succession was about to open ; but his great design was carried out by the military genius of Marlborough, and the Balance of Power was secured by the Treaty of Utrecht (1713).

Perhaps no statesman of modern times has placed himself so completely at the Occidental point of view as William. Though he loved the practice of the military art for its own sake, and is said to have been never thoroughly cheerful and happy except on the battle-field, he cannot be charged with having engaged in any war for personal or even purely national objects. His military

talents were considerable ; and if Boyne was the only pitched battle he ever won, he never suffered any crushing defeat, even from such famous captains as Turenne, Condé, and Luxemburg. Though of puny frame and all through his life an invalid, he spent whole days on horseback, and delighted to lead his soldiers where the fire was hottest. Indifference to danger of every kind was indeed one of his chief characteristics. Cold and ungracious in his demeanour, he obtained the love of few but the respect of all. Like his great ancestor, he set his face against religious persecution, and he may be considered as the champion of Toleration no less than of the Balance of Power. [E. S. B.]

T. B. Macaulay : *History of England from the Accession of James II.* H. D. Traill : *William the Third.* He is buried in Westminster Abbey. Many portraits—one by Jan Wyck, N.P.G.

WILLIAM THE SILENT (*William of Nassau, Prince of Orange*), b. 1533, d. 1584.

Of the vast empire ruled by Philip II. of Spain the Low Countries were the richest and most thickly peopled portion. Protestantism early found converts there, especially in the northern provinces. To stamp out heresy there and everywhere was the grand aim of the arch-reactionist—dearer to him even than the extinction of political freedom. The forty-two years of his reign were devoted to this accursed design. Three great historical figures stood in his path, and saved the West from so great a calamity—Henry IV. of France, Elizabeth of England, and WILLIAM OF ORANGE.

The Emperor Charles V., an excellent judge of men, placed William in command of armies, and made him his trusted counsellor, before he was 21. He was a man of profound discernment, penetrating the designs of others as if by magic, singularly calm and cool in thought as well as in action, and of a courage and patience that no trials could shake, no dangers appal. When Philip and Henry II. of France had made a secret compact, at Câteau Cambrésis, for the extirpation of heresy (1559), the latter mentioned it casually to William, whom he supposed to be in Philip's confidence. William listened in silence without betraying any surprise, and thus acquired his surname of " the Silent " ; though, so far from being a taciturn man, he was an eloquent orator and a most agreeable talker. Though a Catholic, he from the first, as a member of the Council, opposed the persecuting policy of Philip. He was willing that noisy, aggressive Protestants should be punished, but he objected to the Inquisition which pryed into quietly held beliefs.

When Philip sent the monster Alva to crush the liberties of the Netherlands and extirpate heresy (1567), William retired to his German county of Nassau-Dillenburg, professed himself a Lutheran, and raised a German army against Alva. His first campaigns were unsuccessful, and a plan of operations concerted with Coligny and the French Huguenots was frustrated by the Massacre of St. Bar-

tholomew (1572). But just when these large schemes came to an end the seafaring poeple of Holland and Zealand began the insurrection which was destined to have such immortal results. William put himself at the head of it. The dykes were cut and the country flooded. Europe looked on with amazement year after year at the stubborn resistance of that little half-drowned tract of country, not bigger than Yorkshire, where Utrecht and Leyden and Haarlem, names sacred for ever in the annals of patriotic endurance, were standing at bay against the unrivalled soldiers of Spain commanded by the greatest generals of the century. Gradually the insurrection spread to other provinces. But the great difficulty was to get Catholics and Protestants to pull together. In Holland bigoted Calvinism was in the ascendant; and William found it advisable to quit the Lutheran communion and publicly join the Calvinist Church. His strong intellect was occupied with human interests; and, though a believer in divine providence, he doubtless held the distinctive dogmas of Catholic, Lutheran, and Calvinist equally cheap. Even in Holland he insisted on toleration for the Catholics, though not for their public worship. The war had lasted sixteen years, and was still at its height when the career of William was cut short by the bullet of Balthazar Gerard, an assassin despatched by Philip. Twenty-five years longer had the struggle to continue before Dutch independence was secured (see BARNEVELDT).

Comte awards to William the praise of having "admirably conducted the most honourable and least stormy of the modern conflicts between the revolutionary spirit and the policy of repression." His name is for ever associated with the assertion of National Independence and Freedom of Conscience, principles which, though purely negative, and therefore incapable of affording any foundation for the reorganisation of society, were yet indispensable as clearing the way for it and sheltering the growth of constructive speculation. Accordingly the Dutch Republic has the glorious distinction of having been, during its first century, the chosen asylum of exiled patriots and advanced thinkers.

Yet though it was the destiny of William of Orange to preside over the first of the long series of revolutionary uprisings which have agitated the West in modern times, he was not by nature a revolutionist, and his policy was always as conservative as circumstances permitted. With the wise relativity which marks the true statesman, even in revolutionary tempests, he contented himself with providing for each need as it arose. Avoiding any appeal to metaphysical dogmas, he took his stand on law, precedent, and custom, skilfully availing himself of all existing institutions that could be adapted to new purposes, instead of sweeping them away in the name of a vain symmetry. At the same time he was no slave to legality, but knew how to create precedents when the time needed innovation.

Few personages who have played a great part in politics have left so pure and unstained a record. His fearlessness, his constancy,

his unselfish devotion, his gentleness and forbearance will remain a model for all time to those who are called to the arduous task of directing a revolution. His only fault, if it is to be called a fault, was his deficiency in personal ambition and self-assertion. And even this, while disadvantageous to his country, adds to the beauty of his private character. By his premature and ever to be lamented death the possibility of thoroughly completing the great task he had undertaken was destroyed. What misfortunes to his countrymen and to Europe would have been averted had a longer life been granted to the one man who was capable of creating a United Netherlands of seventeen provinces instead of seven. History affords no more striking illustration of the important part played by great men in determining the extent and completeness of political movements. [E. S. B.]

J. L. Motley: *Rise of the Dutch Republic.* F. Harrison: *William the Silent.* He is buried in the Nieuwe Kerk, Delft. Portrait by Mierevelt, Stadhuis, Delft.

XIMENES (*Francisco Ximenez de Cisneros*), **b. 1436, d. 1517.**

At the age of 56, XIMENES, then a Franciscan friar, was called by Isabella of Castile to be her confessor (1492), and soon became her most trusted counsellor and Archbishop of Toledo. After the deaths of Isabella (1504) and her son-in-law Philip (1506), he prevailed on the Castilians to readmit Ferdinand of Aragon as Regent. Ferdinand procured for him the dignity of Cardinal, and when dying (1516) nominated him Regent of Spain, the heir to the throne, Charles (afterwards Emperor), being in the Netherlands. Ximenes was now 80 years old, but he governed Spain for nineteen months with astonishing energy, systematically extending the royal authority and repressing the powerful nobility. Grants from the Crown domain were resumed, pensions cancelled, and a burgess militia organised to supersede the feudal levies. Great nobles who resisted were vigorously put down. At the same time the finances were reformed and educational institutions created on a grand scale. Charles on his arrival (1517) showed no gratitude for these splendid services, but dismissed Ximenes to his diocese, where in a few weeks he died. "His character," says Prescott, "was of the stern and lofty cast which seems to rise above the ordinary wants and weaknesses of humanity. His genius—of the severe order, like Dante's or Michael Angelo's in the regions of fancy—impresses us with ideas of power that excite admiration akin to terror." Cardinal and Primate of Spain, he never ceased to practise all the austerities of the cloister, sleeping on the ground and always wearing under his robes the coarse Franciscan frock, which he mended with his own hands. [E. S. B.]

W. H. Prescott: *History of the Reign of Ferdinand and Isabella.* W. Robertson: *Charles V.* Ximenes was buried in the Chapel of the College of S. Ildefonso at Alcalá de Henares, but his monument now stands in the Colegiata Church there. The University which he founded at Alcalá was removed to Madrid in 1836.

SULLY (*Maximilien de Béthune, Baron de Rosny and Duc de Sully*) b. 1560, d. 1641.

Maximilien de Béthune, Baron de Rosny, better known by his later title of SULLY, while yet a lad entered the service of Henry of Navarre, and fought valorously in all the actions of the civil war, getting himself covered with wounds. He advised Henry to become a Catholic, but would not take the same step himself, even to become Constable of France. With dog-like fidelity to his master, he was haughty, rough, and self-confident in his dealings with every one else, and rather valued himself on being generally disliked. Henry set him over the finances. An indefatigable worker and born organiser, he was the very man to cleanse that Augean stable. Peculators high and low were forced to disgorge, vested interests were trampled on, and rigorous audits established. "There was something about him of the great revolutionists," says Michelet. But Sully was more than a great Finance Minister. He laboured to develop tillage and pasturage,—"the two breasts," he said, "that nourish France," and he was sufficiently enlightened to legalise the exportation of corn. Against manufacture and trade he had the prejudices of a noble and a soldier. But here he was overruled by the larger views of his master, who established or promoted many industries, especially the production and manufacture of silk. "French industry," says Michelet, "dates from this reign." On the death of Henry, Sully was driven from the Ministry of Finance. [E. S. B.]

Sully: *Œconomies Royales*; Petitot, 2nd series, i.-viii. *Mémoires* (a modernised and much altered version of the *Œconomies Royales*, written by the Abbé de l'Ecluse in 1745). J. H. Bridges: *France under Richelieu and Colbert*. Sully is buried in the Hotel Dieu, Noyent-le-Rotrou, Eure et Loir. Portrait, Versailles.

OXENSTIERN (*Axel, Count Oxenstierna*), b. 1583, d. 1654.

Nobly born and highly educated, OXENSTIERN was employed in diplomacy by Charles IX., and appointed Chancellor of Sweden by his son, the great Gustavus Adolphus, with whom he always lived in the closest friendship and confidence. After the death of Gustavus (1632) Oxenstiern governed Sweden during the minority of his daughter Christina, and took his place as head of the Protestant League. The Emperor seemed to be again getting the upper hand in the long struggle of the Thirty Years' War until Richelieu intervened more directly (1635). The two great Ministers of France and Sweden, equally matched as negotiators, combined their policies. The Swedes, led by Bernard of Weimar, Baner, and Torstenson, and the French under Condé and Turenne, in many hard-fought campaigns, at length broke the Austrian power; and the Treaty of Westphalia (1648) brought the religious wars to a close. Oxenstiern had taken great pains with the political education of Christina;

but that clever and eccentric Queen, on assuming the management of affairs, did not always follow his advice, expecially in her refusal to marry, her abdication, and her nomination of Charles X. as her successor, under whom, however, Oxenstiern continued to be Minister till his death. In civil government Oxenstiern was a laborious administrator, enlightened in his economic views, and of irreproachable integrity. He was a zealous promoter of education.

[E. S. B.]

Schiller: *Thirty Years' War.* J. W. von Archenholtz: *Mémoires pour servir à l'histoire de Christine, Reine de Suède.* Oxenstiern is buried at Jäders, Sudermania. Portrait by Mierevelt.

MAZARIN (*Giulio Mazarini*), b. 1602, d. 1661.

MAZARIN was of Sicilian parentage, and till his 37th year was in the diplomatic service of the Pope. His great ability and the suppleness of his character recommended him to Richelieu, who invited him to France, got him made a Cardinal (1640), employed him in the highest affairs, and on his death-bed advised Louis XIII. to make him Minister. Five months later the King died (1643). His widow, Anne of Austria, as Regent for her son, Louis XIV., then only five years old, reposed unbounded confidence in Mazarin, and he was the real ruler of France till his death, eighteen years later. He was a very handsome man ; and his relations with Anne were so intimate, that some have supposed that they were secretly married. Whether he was ever ordained a priest is doubtful.

Mazarin continued the foreign policy of Richelieu. During the last five years of the Thirty Years' War the Congress of Westphalia was sitting. The representatives of Christendom met in deliberation for the first time since the great ecclesiastical councils of the 15th century. Diplomacy was henceforth to exercise, as best it might, the function of international arbitration that had once belonged to the Church. Mazarin's consummate diplomatic skill was seconded by the victories of Condé and Turenne. The treaties finally agreed upon were his work, based on Richelieu's principles. They ratified the profound changes produced by the religious wars of a hundred years, and were nothing less than a sort of new constitution for Europe. The Austrian and Spanish Hapsburgs, the champions of intolerance, were humbled, the conversion of the titular Empire into a real world-sovereignty aimed at by so many Emperors was abandoned, the independence of the Protestant States of the North was assured, the principle of a Balance of Power was recognised, and France acquired the territorial compactness and possibility of internal consolidation which a hundred and fifty years later enabled her to make her great Revolution in spite of the banded despots of Europe. Such were the net results of this famous Congress, and, if broadly considered, they must be pronounced not more desirable for France than for Europe as a whole (Peace of Westphalia, 1648).

Spain alone remained in arms against France. To this partial prolongation of the struggle she had been encouraged by the contemptible rebellion in France called the Fronde (1648-1652). The Parliament of Paris, not a legislative assembly but a corporation of middle-class magistrates, imitating the example lately set by the English Long Parliament, aspired to control the crown, and was supported by the populace of Paris. Many of the great nobles, with far different aims, joined in the rebellion. Mazarin, odious both as a monarchist and as a foreigner, was twice obliged to go into exile for short intervals. But the middle-class leaders, finding that rebellion tended as usual in France not to constitutional government but to aristocratic anarchy, Spanish interference, and national disintegration, at length made their peace with the Regent ; and Mazarin formally resumed the power which he had never ceased to wield even in his absence. The Spanish armies were expelled, a close alliance was formed with Cromwell, who sent 6000 of his Ironsides to serve under Turenne, and Spain was at last compelled to sign the Treaty of the Pyrenees (1659)—the crowning diplomatic triumph of Mazarin, who did not long survive it. His internal administration had been wasteful and corrupt, and he had accumulated a private fortune of five millions sterling. But he left Europe at peace and France strong ; though not with a strength dangerous to the liberties of her neighbours. The aims of Richelieu and Mazarin were strictly bounded and attainable, and had nothing in common with the arrogant pretensions of Louis XIV. or the wild ambition of Bonaparte.

[E. S. B.]

A. Hassell : *Mazarin*. J. H. Bridges : *France under Richelieu and Colbert*. Mazarin's heart was placed in the Church of the Theatines, Paris ; his body, ultimately in the College he founded. Portrait, F. ; engr. from life by Nanteuil.

WALPOLE (*Sir Robert Walpole, afterwards Earl of Orford*), b. 1676, d. 1745.

WALPOLE is the chief representative of the Whig party, which placed and kept the Hanoverian family on the English throne—in other words, of the aristocratic dictature. Except for an interval of about three years (1717-1720), he was in office from the accession of George I. till the fifteenth year of George II. (1714-1742), and during the last twenty years of that period was really the sole ruler of the country. An able and enlightened Minister for finance and commerce, he was bent on avoiding war. Therein is his merit. He freely bribed members of Parliament, but not more than other Ministers before and after him. He also reduced to a system the practice of using all patronage, great and small, for party purposes. It must be remembered in his excuse, that government by Parliament was still a crude experiment. The great need and the great difficulty was to secure some stability. Bribery was then, as party spirit is still, an indispensable condition of the Parliamentary *regime*.

Walpole could only work with the means at his disposal. The cynical maxim, that "every man has his price," has been generally, but wrongly, attributed to him. His own hands were fairly clean. He was at last driven from office by a factious coalition of ambitious rivals and a popular outcry for an unwise war. [E. S. B.]

John Morley: *Walpole.* J. M. Robertson: *Bolinbroke and Walpole,* 1919. Walpole is buried at Houghton, Norfolk. Portraits by Van Loo and by Hayman, both N.P.G. In one edition of the Calendar the positions of Walpole and Mazarin are interchanged—Walpole being the chief name and Mazarin his leap-year substitute.

COLBERT (*Jean Baptiste Colbert*), b. 1619, d. 1683.

It is worthy of remark that the able government of France during the first twenty-nine years of the reign of Louis XIV. (1643-1672), was really due to the principle of adoption, Mazarin having on his death-bed recommended COLBERT to his master, just as Richelieu had recommended Mazarin. "Reform of judicial abuses, codification of the law, establishment of an efficient police, a just system of taxation, freedom to internal commerce, encouragement to manufacturers and to agriculture, development of the canal system, formation of new colonies, creation of the French navy—such was the programme of the last statesmen worthy of the name, if we except the two short years of Turgot, who was to administer the government of France till the Revolution." Colbert has been blamed by economists for his artificial creation and minute regulation of manufactures, to which he is accused of sacrificing agriculture by prohibiting the exportation of corn. But the fact remains that he found his country almost destitute of manufactures, and left her possessed of many which have enormously added to her resources and wellbeing. Looking at his measures as a whole, and relatively to the then situation of France, they will be found to be enlightened and liberal. In the finances the work of Sully had to be done over again. The root-evil of French taxation was the exemption of the clergy and nobility from the *taille* or property tax. This privilege Colbert, like Sully and Richelieu, longed, but had not the power, to abolish. But he largely diminished the *taille,* and filled up the deficiency by indirect taxes which all classes paid. Under his wise government France made extraordinary progress, until Louis XIV. began to subordinate all the interests of the State to projects of war and conquest. Colbert's remonstrances were roughly silenced. He was told to find the money wanted, or to make room for some one who would. Unwilling to desert the service of his country, but with despair in his heart, he spent the last years of his life in inventing new taxes, while the prosperity he had created was perishing before his eyes; and he went down to his grave amid the curses of the suffering population of whose impoverishment he seemed to be the author. [E. S. B.]

Voltaire: *Siècle Louis de XIV.* Pierre Clément: *Histoire de Colbert.* J. H. Bridges: *France under Richelieu and Colbert* (quoted above). Colbert is buried in the Church of St. Eustache, Paris. Portrait by Mignard, I.; engr. from life by Nanteuil.

LOUIS XIV., b. 1638, d. 1715.

Comte has placed LOUIS XIV. in the Calendar solely for the first period of his reign, when he industriously co-operated with Colbert (*Pos. Pol.* iii. 488, 493). The close of that period may be fixed by the invasion of Holland (1672). Thenceforward, giving full vent to his domineering disposition, he threw himself into a more and more retrograde policy at home and abroad, and became, what the house of Austria had been in the days of his father and grandfather, the cruel persecutor of Protestantism and the oppressor of neighbouring peoples. To save intellectual freedom and restore the balance of power needed a European coalition, of which the hero was William III. As for the French monarchy, till then on the whole progressive, it had now entered on the downward course which led to the Revolution. [E. S. B.]

Voltaire: *Siècle de Louis XIV*. He is buried at St. Denis. Portrait by Rigaud, L.; by Largillière in group, W.; engr. from life by Nanteuil.

D'ARANDA (*Pedro Pablo Abaraca y Bolea, Conde de Aranda*), **b. 1718, d. 1799.**

The French Revolution was preceded in almost every country of Europe by attempts on the part of statesmen, who had imbibed the doctrines of the French Encyclopædists, to carry out sweeping reforms by dictatorial authority—in France, Turgot (1774-6) and others; in England, Pitt (1784-9); in Spain, Charles III. (1759-88); in Portugal, Pombal (1750-77); in Austria, Joseph II. (1780-90); in Prussia, Frederick the Great (1740-86); in Denmark, Struensee (1770-72); in Tuscany, Leopold (1765-90). One may even add Pope Clement XIV. (1769-75), who suppressed the Jesuits. It would undoubtedly have been well if progressive reforms could have been gradually carried out everywhere by the dictatures, so as to forestall democratic revolution. But most of these reformers proceeded in exactly the same absolute and metaphysical spirit as the French Revolutionists, taking little or no account of historical antecedents, circumstances, or prejudices, and believing that new ideas and manners could be created at once by new institutions. Of all these reforming dictators, none was more zealous than Charles III. of Spain. One of his ablest Ministers was the Count D'ARANDA, an intimate friend of Voltaire and D'Alembert. His tenure of office (1765-1773) was marked by an immense number of reforms, financial, judicial, and military, and measures for promoting industry, commerce, and education. The overweening power of the Church was curtailed. The Jesuits were expelled (1767), and some check was put, for a time, on the searching despotism of the Inquisition. But these reforms, especially the latter, were unpopular. Charles said to Aranda that "the Spaniards were like children, who cry when

they are washed." But finding himself unable to maintain his Minister in office, he sent him as ambassador to Paris (1773), where he negotiated the alliance with the revolted colonies of North America, which contributed to the successful issue of their rebellion against England (see FRANKLIN). On the death of Charles III. all his reforms came to nothing. [E. S. B.]

W. Coxe: *History of the Bourbon Kings of Spain*, vol. iv. M. Lafuente: *Historia General de España*, vols. xx. xxi. T. H. Buckle: *Hist. of Civilisation* (ch. on the Spanish Intellect—xv. in Robertson's ed.). Engr., B.M.

POMBAL (*Sebastão Jozé de Carvalho, Marquez de Pombal*), b. 1699, d. 1782.

POMBAL was Minister of Joseph I. of Portugal during the whole of his reign (1750-1777). He crushed the mutinous nobility with unrelenting severity, curtailed the power of the Inquisition, and expelled the Jesuits (1759)—an example followed not long after by all the Catholic countries. The army was reorganised, the treasury filled, the public service purified, agriculture, commerce, and manufacture fostered, and scientific studies introduced into the University of Coimbra. The death of the King was immediately followed by the fall of Pombal. [E. S. B.]

John Smith: *Memoirs of Pombal*. H. M. Stephens: *Portugal*. G. Young: *Portugal, Old and Young*. He is buried at Pombal, Estramadura. Print, B.M.

TURGOT (*Anne Robert Jacques Turgot*), b. 1727, d. 1781.

Apart from his political greatness, TURGOT will always be remembered as one of the foremost of the illustrious band of thinkers and writers who are the glory of the 18th century. His knowledge was encyclopædic, but it was in political and economic science that he most shone. At the age of 23, in a discourse at the Sorbonne (1750), two years after the publication of Montesquieu's *Spirit of Laws*, he showed himself already far in advance of that epoch-making book. He even distinctly enunciated the "Law of the Three Stages," rediscovered by Comte seventy-two years later. But he cannot have realised its true importance, for he did not recur to it; nor indeed without Comte's complementary "Law of the classification of human conceptions" could any use be made of it. About the same time he refused the ecclesiastical career for which he had been destined, and entered the magistrature, because he would not "wear a mask on his face all his life." Sincerity indeed was one of his chief characteristics. His political career began at the age of 34, when he was appointed Intendant of the "Generality" of Limoges, one of the poorest and most backward districts of France (1761). There, during thirteen years, he carried out, so far as the wretched government gave him a free hand, the economic and administrative theories

which he had before pondered and advocated. It would be impossible here to give any idea of the enlightened energy, the minute diligence, the noble philanthropy which he brought to bear on the population committed to him, or of the wonderful results he achieved even under the bestial despotism of Louis XV. Three times he refused promotion to more desirable Generalities, because he preferred to watch over the work he had begun at Limoges.

The accession of Louis XVI. (1774) seemed at first to offer a fairer prospect for France. Turgot was called to the Ministry. Never did a country have such a chance. Never perhaps has a Minister combined in so high a degree theoretic knowledge, practical experience, a splendid intellect, a strong character, a beautiful moral nature, deep devotion to the public good, and, last but not least, prestige. The eyes of all Europe were upon him. The King was absolute, and promised him a free hand. Louis XVI. was not vicious, and he wished, in a lazy sort of way, the happiness of his people. That is the best that can be said of him. Turgot's plan of reform had long been ready. It was comprehensive and thorough. It embraced all that was valuable in the measures afterwards carried out by the Constituent Assembly, but with an important difference. Turgot's National Assembly was to be not legislative, but only consultative ; in other words, the government was to remain dictatorial. Turgot again would have avoided the most disastrous error of the Constituent Assembly—its attempt to reorganise and control the Church. He desired to disestablish the Church altogether and leave religion free. Although he had fully thought out his vast plan, he did not propose to enact it at one stroke, but to carry it out, like his reforms at Limoges, bit by bit. The most pressing need was to avert bankruptcy by cutting down wasteful expenditure, equalising taxation, and abolishing mischievous restrictions on industry. But Louis XVI., whose reforming zeal was faint and short-lived, yielded to the clamours of the privileged classes, headed by the Queen, and after twenty-one months Turgot was dismissed (1776), and with him vanished the last chance of averting a violent Revolution. He died five years later, at the age of fifty-four.

[E. S. B.]

Turgot : *Works*, with Memoir by Dupont de Nemours. Condorcet : *Vie de Turgot*. W. W. Stephens : *Turgot's Life and Writings*. John Morley : *Critical Miscellanies*, vol. ii. For France before the Revolution A. de Tocqueville : *The State of Society in France before the Revolution* (Eng. trans. of *L'Ancien Régime*). A. Young : *Travels in France*, ed. by Miss Betham Edwards. Turgot was buried in the Chapel of the Incurables, now a part of the Hospital Laënnec, Paris. Bust by Houdon, L.

CAMPOMANES (*Pedro Rodriguez, Conde de Campomanes*), b. 1723, d. 1802.

CAMPOMANES was a Minister of Charles III. of Spain and a friend of D'Aranda, whom he succeeded in the functions (though not in the title) of President of the Council of Castile. Robertson says of his works on police, taxation, agriculture, manufactures, and

trade: "There are not many authors, even in the nations most eminent for commercial knowledge, who have carried on their inquiries with a more thorough knowledge of those various subjects, and a more perfect freedom from vulgar and national prejudices, or who have united more happily the calm researches of philosophy with the ardent zeal of a public-spirited citizen" (*Hist. of America*, bk. viii. *n.* xxx.). [E. S. B].

M. Lafuente: *Historia General de España*, vols. xx. xxi. W. Coxe: *History of the Bourbon Kings of Spain*, iv. 416.

RICHELIEU (*Armand Jean Du Plessis, Cardinal, Duc de Richelieu*), b. 1585, d. 1642.

The murder of Henry IV. (1610) not only postponed the relief of Europe from the preponderance of the House of Austria, but gave the great nobles of France another opportunity for rebelling against the royal authority during the minority of LOUIS XIII., and fastening upon their country like so many birds of prey. At last the King, when 23 years old, took as his Minister the Cardinal de RICHELIEU, Bishop of Luçon, then in his 38th year (1624), who had already been Secretary of State during the regency of the Queen-mother, but had been involved in the fall of her favourite Concini. Sully, the old servant of Henry IV., exclaimed that "the King had been, as it were, inspired by God in calling the Bishop of Luçon to the Ministry." From that time till his death Richelieu was the real ruler of France. The King was a chronic invalid of humble ability, weak in character, gloomy and suspicious; but he was not wasteful, dissolute, or greedy of military glory, and he understood clearly enough both the policy incumbent upon a King of France and his own incapacity for carrying it out. Hence, though he always disliked Richelieu, and was more than once on the point of surrendering him to his enemies, the crisis always ended in his supporting the great Minister, who had no other aim than to promote the interest of France and of the King as the representative of France.

In his eighteen years of power Richelieu completed the destruction of the political power of the great nobles. He crushed their plots and punished the plotters without mercy. Every noble governor of a province found a middle-class "Intendant" placed at his side, who ousted him from all real authority. Feudal castles were demolished; duels, the last survival of the feudal right of private war, were forbidden; and the great nobles were astounded when two of their number, who had insolently defied the edict by fighting openly in the Place Royale, were tried and beheaded. In this war against privilege Richelieu was in truth a precursor of the Revolution. Everything gained for the crown was really so much gained for the nation; though the nation did not reap the full benefit while the crown was worn by the retrograde kings who succeeded Louis XIII.

In pursuing his great ends, Richelieu could not develop parliamentary institutions or even local self-government. Even in England that system meant aristocratic rule till the nineteenth century. In France, as all experience showed, it would have worked for aristocratic anarchy, and would have been fatal even to national unity. There the dictature could only be of the monarchical type until the time should be ripe for the republic. Richelieu had been a deputy in the States-General of 1614. That assembly was not convoked again till 1789. Equally unadvisable was it to tolerate any encroachment by the judicial corporation called the Parliament of Paris, for its members too, in their own way, were partisans of privilege and enemies of equality. The Revolution, when it came, seemed to its contemporaries to be a complete undoing of everything that existed. But judicious investigators are now showing how largely its work had been already accomplished by the absolute monarchy.

The first five years of Richelieu's Ministry were principally occupied with subduing the Huguenots, who, not content with the extraordinary privileges guaranteed them by the Edict of Nantes, aimed at founding a separate State in the south, after the example of the Dutch. Huguenot fanaticism was exploited by the great nobles of the party, who invoked the assistance not only of England and the German Protestants, but even of Spain. With the fall of their stronghold, Rochelle, this danger at last came to an end. Henceforth the Huguenots were not a turbulent faction, but simply a nonconformist sect. Their religious liberties were still guaranteed, and Richelieu could boast that no Huguenot's advancement in the public service was ever prejudiced by his creed.

In the meantime the Thirty Years' War, the last grand struggle between Catholic and Protestant, was raging in Germany. But religious feeling was now more than ever subordinated to political interests. The Austrian and Spanish Hapsburgs menaced the balance of power no less than religious freedom ; and they found themselves opposed not only by the Protestant States, but by the Cardinal Minister of Catholic France, and by Urban VIII. himself, who was more of a statesman than a Pope.

Richelieu encouraged and subsidised Gustavus Adolphus ; and when the hero had fallen at Lützen (1632), and the Protestants had been defeated at Nördlingen (1634), he entered into still closer relations with the Swedish statesman Oxenstiern, and intervened actively in the struggle. He did not live to see its conclusion. But that great landmark in Modern History, the Treaty of Westphalia (1648), which put an end to the preponderance of the Hapsburgs, secured the Protestants of North Germany, and established the principle of the Balance of Power in Europe, must be regarded as his achievement.

Richelieu, like Louis XI., has always had the ill word of aristocrats for beating down privilege and of democrats for establishing the monarchical dictature. He was not a man to make himself loved.

He has been reproached for cruelty. But he might have beheaded many more rebels and traitors without being unjust. What caused the outcry was his praiseworthy habit of picking out the highest-born criminals for punishment. When the priest asked him on his deathbed whether he forgave his enemies, "I have had none," said he, "but the enemies of the state." The comment of Pope Urban VIII. on his career marks the chasm that now separated the theological and the human conceptions of public duty: "If there is a God, he will have to smart for what he has done; but if there is no God, he was certainly an excellent man." Pope and Cardinal, in fact, were in much the same case. [E. S. B.]

J. H. Bridges: *France under Richelieu and Colbert.* R. Lodge: *Richelieu.* He is buried in the Church of the Sorbonne, Paris. Portraits by P. de Champagne, L. and N.G.

SIDNEY (*Algernon*), b. 1622, d. 1683.

SIDNEY and his elder brother, Viscount Lisle, were zealous adherents of the Parliament during the civil war. They were nominated members of the court for trying the King, but did not sit. Algernon was in favour of deposition. During the Protectorate he remained in retirement, and after the Restoration lived in exile for seventeen years. His father, the Earl of Leicester, obtained his pardon from Charles II. in 1677. On his return he threw himself with vehemence into the movement headed by the Earl of Shaftesbury and Lord Russell, which seemed likely at one time to bring about a renewal of the rebellion. But Charles II. played his difficult game with consummate skill, and got the better of the Whigs. Russell and Sidney were tried for high treason, and beheaded. The evidence was insufficient, and the trials were grossly unfair; but there is no doubt that they had been engaged in a conspiracy for insurrection. "Sidney," says Burnet, "was a man of most extraordinary courage; a steady man, even to obstinacy; sincere, but of a rough and boisterous temper that could not bear contradiction. He was stiff to all republican principles. He had studied the history of government in all its branches beyond any man I ever knew. He met death with an unconcernedness that became one who had set up Marcus Brutus for his pattern." It is to be regretted that he accepted money from Louis XIV.; but no one pretends that his political action was swayed by it. [E. S. B.]

A. C. Ewald: *Life and Times of Sidney.* He is buried at Penshurst, Kent. Portrait by Justus van Egmont, N.P.G.

LAMBERT (*John*), b. abt. 1620, d. 1683 (?).

Cromwell valued LAMBERT as an officer, and entrusted him with important duties in most of his campaigns. Lambert was popular with the army, and had the chief hand in making Cromwell Pro-

tector. After this he was looked on as the second personage in the State, and as likely to be Cromwell's successor. This expectation led him to thwart the Protector's desire to be made king, and, Cromwell resenting his double-faced behaviour, dismissed him from all his offices. After Cromwell's death the old discord between the Parliamentary and the military republicans broke out afresh. The latter attempted, in a blundering and passionate way, to repeat the policy of Cromwell; but their incompetence and ambitious rivalries deprived them of the respect even of their own soldiers. Lambert was the most prominent and active of them, and his defeat of the premature royalist rising in Cheshire was the last blow struck for the Commonwealth. At the Restoration, though not a regicide, he was specially excepted from the amnesty, because he was considered an influential and dangerous man. He saved his life by the unworthy apologies he made at his trial, and was banished to Guernsey. In 1667 he was removed to St. Nicholas Island, Plymouth Sound, where he died—according to some accounts, a Catholic.

[E. S. B.]

Dict. of Nat. Biog., Art. LAMBERT by C. H. Firth. W. Godwin: *History of the Commonwealth*. E. Ludlow: *Memoirs*. Guizot: *History of Richard Cromwell and the Restoration*. Portrait by R. Walker, N.P.G.

FRANKLIN (*Benjamin*), b. 1706, d. 1790.

Born at Boston of poor parents, FRANKLIN began life as a working printer. At 23 he set up business for himself at Philadelphia, and prospered. An entirely self-taught man, he gradually gave himself an excellent and varied education, and in middle life (1752) made his "immortal discovery" (*Phil Pos.* ii. 34, p. 465) of the identity of lightning and electricity. But though he is most famous as a scientist, it as a patriot and statesman that he figures in the Calendar. "American independence irrevocably initiated the steady movement towards the decomposition of the great States. One might even go further back, to the Dutch revolution, were it not that the political significance of that event is modified by its religious character. But when we see the separation for ever of two populations united by language, by faith, and even by a kinship that was still fresh, no one can mistake the real source of the political disruption. Political association, if it is to be free and lasting, must consist of a certain number of towns, with their respective country districts, voluntarily grouped together around a city which has risen to the rank of a capital. The separation of the North and South American colonies from the mother-countries afforded the earliest verification of this law. The new nationalities so formed are themselves of excessive size, and must eventually be subdivided; and all statesmen should even now foresee the spread of the same process to the European States. France, above all, should prepare to accept it with dignity and not vain repining" (*Pos. Pol.* iv. 403).

No man did more for the establishment of American independence than Franklin. From 1757 to 1762, and again from 1764 to 1775, he resided in England as agent for the colonies of Pennsylvania, Massachusetts, Maryland, and Georgia. His reputation as a man of science was at this time enormous. The learned bodies of this and other countries had heaped distinctions upon him, and he was no less admired for his character than his attainments. But when it fell to him as the official representative of his countrymen to argue and protest against the tyrannical claim of the mother-country to tax her colonies—a duty which he performed with rare ability and temper—he was assailed by the coercionists with the coarsest abuse as a malefactor to be shunned by all honest men. In March 1775 he left England hastily to avoid arrest, and on landing in America he found the fighting already begun. He at once became a leading member of the insurrectionary government. In 1776 he was sent on a mission to France, where he was received with extraordinary enthusiasm both as a savant and as a patriot. His meeting with Voltaire at the Academy of Sciences, where the two illustrious old men publicly embraced each other, is really a great historic scene : and every one knows the epigram of Turgot—

> *Eripuit cœlo fulmen, sceptrumque tyrannis :*
> He wrested from heaven its thunderbolt and from tyrants their sceptre.

But it was not till 1778 that he induced the French Government to form the alliance with the revolted colonies which eventually compelled England to concede their independence. After his return to America, in 1785, he continued to take an active part in public affairs as long as his health permitted. His last public act was to address a memorial to Congress against slavery. On his death his countrymen went into mourning for two months, and the French National Assembly for three days. The genius of Franklin was eminently practical. In his scientific researches, as in his political conduct, he was always actuated by a desire to promote the well-being of his fellow-men. [E. S. B.]

Franklin : *Autobiography*. G. O. Trevelyan : *The American Revolution*. Franklin is buried in Fifth Street, Corner of Arch Street, Philadelphia. Portrait by Duplessis (copy, N.P.G.) ; bust by Houdon, L.

HAMPDEN (*John*), b. 1594, d. 1643.

HAMPDEN is the most conspicuous figure in the constitutional resistance to Charles I. before the civil war. He possessed a large estate, and his family had been established at Hampden, in Buckinghamshire, since the time of Edward the Confessor. He maintained a brotherly intimacy and close political co-operation with Sir John Eliot, till the death of that noble patriot in the Tower. He was himself imprisoned in 1626 for refusing to lend money to the King. In 1635 he refused to pay the illegal tax of ship-money, and under-

took the expense of fighting that famous case before the twelve judges. It was decided against him in 1638, and on the broad ground that the King's right of taxation could not be limited by Parliament. Charles did not intend to convoke Parliament again. No means, therefore, of resistance seemed to remain except insurrection. But with the disappearance of the old feudal nobility the machinery for insurrection was gone ; and the labouring class, already landless, was indifferent, except such as were discontented on religious grounds. What ruined the plan of Charles was the Scotch rebellion (1639). Scotland was more than a century behind England. Her nobles could still furnish the nucleus of an insurrectionary force, and they allied themselves with the religious fanaticism of the lower class. Charles now wanted, not the passive submission of the English aristocracy, but its active assistance ; and this he could only hope to get in a Parliamentary way.

When the Long Parliament met (1640) " the eyes of all men," says Clarendon, " were fixed upon Hampden as their *patriæ pater* and the pilot that must steer the vessel through the tempests and rocks which threatened it. And I am persuaded his power and interest at that time was greater to do good, or hurt, than any man's in the kingdom." To him belongs the chief credit for the admirable skill with which the Parliamentary struggle against the King was carried on. His influence was due no less to his high character than to his sagacity ; while his self-command and high-bred courtesy won the respect even of his opponents. When the crisis came he was of those who appealed to the sword without hesitation, and himself, at the age of 48, became a soldier (1642). In this new career he at once gave proof of remarkable energy and capacity. But before the war had lasted twelve months he received his death-wound at the combat of Chalgrove. He was the first cousin and (according to Clarendon) the " bosom friend " of Cromwell, who was five years his junior.

[E. S. B.]

Lord Nugent : *Memorials of Hampden*, and Macaulay's Essay thereon. S. R. Gardiner : *Hist. of England ; Hist. of the Great Civil War.* Hampden is buried in Hampden Church, Bucks. Portrait by R. Walker, N.P.G.

WASHINGTON (*George*), b. 1732, d. 1799.

WASHINGTON was a large landed proprietor in Virginia, where his great-grandfather, an English gentleman of old family, had settled in 1657. He had no education beyond the elements of mathematics. He served with distinguished valour as colonel of militia in the war against the French, which began in America in 1754. When the War of Independence broke out (1775) he was appointed General-in-Chief by the Congress. A better choice could not have been made. Washington was not a great military genius ; indeed, he was gener-

ally beaten in battle. But he was a good officer, an organiser and disciplinarian by nature, not afraid of responsibility, and of heroic firmness. Seldom has any general had so difficult a task. His soldiers at first enlisted for a few months, and made no scruple of leaving him when their time expired, so that his army consisted of a perpetual succession of raw recruits and sometimes dwindled to almost nothing. He was often without ammunition or supplies of any kind; for the colonists, who had begun the war principally to escape from taxation and interference with their trade, showed for the most part little disposition to make any sacrifice for the purpose of carrying it on. On the other hand, the British troops were slow in their movements, and were led by very mediocre generals. Washington after a time obtained full powers from Congress, and gradually built up a regular army of soldiers, enlisted for the duration of the war. What decided the war, however, was the co-operation of France, obtained by Franklin in 1778. England, attacked vigorously by France, Spain, and Holland, and menaced by the Armed Neutrality of the northern powers, lost for a time her command of the sea; and of the 16,000 men who forced Cornwallis to capitulate at Yorktown, 7000 were French, to say nothing of a French fleet which blockaded the river (1781).

Washington had rendered glorious services to his country. But his world-wide and immortal fame rests, and justly rests, on his conduct after the war was over. The officers, who were discontented with Congress, and had learned to revere and love their general, proposed to make him king. Monarchy would have been as unsuitable to the United States in 1783 as it was desirable for England in 1657; and Washington, in whose pure soul lurked no taint of selfish ambition, repelled the proposal with unaffected abhorrence, and prevailed on his veterans to submit quietly to disbandment. This being accomplished, he resigned his command, for which he had refused all pay, accepting only his expenses out of pocket, and resumed his life as a country gentleman. In 1787 he was unanimously elected President of the Convention for drawing up the Constitution, and next year, with equal unanimity, first President of the United States. As he had formerly created an army, so now he had to create a government. His calm good sense, his habit of command, and the perfect confidence felt by all in his rectitude of purpose, carried him successfully through this arduous task. Much against his will, he was compelled in 1793 to accept re-election for another term of four years, during which he managed, though with great difficulty, to maintain neutrality in the war raging between France and England. In 1797 his countrymen, with a steadiness most honourable to them, desired to elect him a third time. But he firmly refused, deeming the precedent to be a bad one, and retired into private life. He lived two years longer, surrounded by the love and veneration of the nation he had made, and to which his memory has been a precious and ennobling inheritance. By

his will he directed his slaves to be emancipated after the death of his widow. [E. S. B.]

Lord Mahon, and W. E. H. Lecky : *Histories of England*. Ludlow : *War of American Independence*. J. Fiske : *Critical Period in American History*. There are many lives of Washington. That of Irving is perhaps the best known. Guizot's Introduction to the Life by Sparks has been published separately in New York, with the title "Character and Influence of Washington in the Revolution." G. O. Trevelyan : *The American Revolution*. F. Harrison : *George Washington and Other American Addresses*. Washington is buried in the grounds of his home, Mount Vernon, Virginia, now kept as a national memorial. Portrait by G. Stuart (replica or copy, N.P.G.) ; in pastels by Mrs. Sharples, N.P.G.

KOSCIUSKO (*Thaddeus*), b. 1746, d. 1817.

Poland lost nearly a third of her territory by the First Partition (1772). Nineteen years later a patriotic Diet carried reforms which would have removed the worst evils of her anarchical constitution (1791). But this did not suit Catherine II. of Russia, and she invaded Poland (1792). The Poles made a brilliant resistance, which might even have been successful but for the treachery of their king, Stanislaus Poniatowski. Prussia eventually combined with Russia to effect the Second Partition, by which Poland lost more than half her remaining territory. The hero of the war was General KOSCIUSKO, who had fought in America under Washington. In 1794 an Insurrection broke out, and Kosciusko was made General-in-Chief. For eight months the Poles performed prodigies of valour, but were at length crushed by the combined Russian and Prussian armies. By the Third Partition (1795) Poland disappeared from the list of nations. Kosciusko, desperately wounded, was thrown into a Russian prison, where he remained till liberated by Paul I. (1796). After this he lived in France. Divining the treachery of Napoleon, he declined to call on his countrymen to join him against Russia, which, however, did not prevent that brigand from forging a proclamation to the Poles in their hero's name (1806). At the Congress of Vienna (1814-15), Alexander I. flattered Kosciusko with hopes of a resuscitation of Poland ; but after Waterloo, the Czar had no longer need to pay court to the patriot. Kosciusko retired broken-hearted to Switzerland, and remained there till his death.

[E. S. B.]

A. Alison : *History of Europe from* 1789 *to* 1815, ch. xvii. Von Sybel : *History of French Revolution*, bk. vi. ix. x. Kosciusko is buried in Cracow Cathedral. Engr. by Oleszczynski.

JEFFERSON (*Thomas*), b. 1743, d. 1826.

A man of high culture, an able lawyer, and a member of the Virginian Assembly, JEFFERSON took a leading part in deciding the colonies to resist the mother-country. He was chosen to draft the Declaration of Independence. The second sentence in that famous manifesto rang through Europe. It was the earliest appearance in practical politics of the theories of Rousseau. "We hold these

truths to be self-evident ; that all men are created equal ; that they are endowed by their Creator with certain inalienable rights ; that among these are life, liberty, and the pursuit of happiness ; that to secure these rights, governments are instituted among men, deriving their just powers from the consent of the governed ; that whenever any form of government becomes destructive of these ends, it is the right of the people to alter or abolish it, and to institute new government, laying its foundation on such principles, and organising its powers in such form, as to them shall seem most likely to effect their safety and happiness." The rest of the Declaration was an enumeration of the unconstitutional acts of George III., more in the style of the English "Bill of Rights" of 1689 (*Phil. Pos.* v., p. 470). Jefferson was an ardent admirer of France. "Every man," he said, "has two countries—his own and France." He succeeded Franklin as American Minister at Versailles (1785), and witnessed with enthusiasm the opening scenes of the Revolution. On his return (1789), Washington made him his Minister for Foreign Affairs. He was the leader of the anti-federalist party, afterwards called "Democrats," who opposed the centralising, authoritative, and aristocratic tendencies of the Federalists, afterwards called "Whigs," who were headed by Adams, the Vice-President, and Hamilton, the Minister of Finance. Washington himself inclined to the latter party, though such was his grand impartiality as to persons that both Jefferson and Hamilton threatened to resign if he did not accept the Presidency for a second term. But Jefferson's eager and not always scrupulous partisanship at length caused a breach between him and Washington which was never healed. On the retirement of the latter, Adams beat Jefferson in the contest for the Presidency (1797). But in 1801, and again in 1805, Jefferson was elected, and the Democratic party maintained its ascendency till the election of Abraham Lincoln. In the epitaph which Jefferson composed for himself he records that he drafted the Declaration of Independence and the bill for establishing religious freedom in Virginia, and that he was the Father of the University of Virginia, but makes no mention of his double Presidency—a last testimony to his democratic principles. He might have added that he had proposed the emancipation of slaves in Virginia ; therein more consistent than the Democrats who came after him.

[E. S. B.]

T. J. Randolph and G. Tucker: *Lives of Jefferson.* Lord Charnwood: *Abraham Lincoln*, pp. 30-35. Jefferson is buried in the grounds of his home, Monticello, Virginia. Portrait by G. Stuart.

MADISON (*James*), b. 1751, d. 1836.

MADISON was a Virginian, and during the War of Independence was a prominent member of the Convention of his own State and of the Congress. He warmly supported the bill which Jefferson

had proposed for establishing religious freedom in Virginia, and had the honour of carrying it, after a long struggle, while its author was in France. After the war he had a chief share in bringing about the Convention which created the Constitution of the United States. But as a member of the Democratic party he was always on the watch to limit the authority of the Federal Government over the separate States, and his writings on this subject not only had immense weight at the time, but are recognised still as possessing a permanent value. He was Secretary of State under his friend Jefferson, and succeeded him in the Presidency, which he held with credit for two terms (1809-17). He was a man of blameless life and moderate disposition; and though he steadily opposed the authoritative policy of Washington, his private friendship with that illustrious man was never impaired. [E. S. B.]

G. Hunt: *The Life of James Madison*, 1902. P. Jennings (once his slave): *A Coloured Man's Reminiscences of J. Madison*. Madison is buried at Montpelier, Virginia. Portrait by G. Stuart.

BOLIVAR (*Simon*), b. 1783, d. 1830.

The revolt of the Spanish colonies, like that in North America (see FRANKLIN), was founded on the need of independence for free development and sound administration. But by their whole history the nations of South America were unfitted for parliamentary government. BOLIVAR had the chief share in expelling the Spaniards and founding a republican dictatorship. The first revolt was rendered possible by the French invasion of Spain (1808), but the great earthquake of Caraccas, looked upon as God's vengeance on the disloyal, brought about a reaction fatal to the Republican cause. Bolivar, fearing that Miranda, the Republican leader, would call in the English, betrayed and left him to die in a Spanish prison, and amid general execration escaped from Venezuela to New Granada, which still maintained a precarious independence. The next year (1813) he unexpectedly crossed the Andes with a few hundred men, gained a victory, and, marching on with ever-swelling numbers, entered Caraccas in triumph, and was acclaimed "the Liberator." But the Republicans were again ruined, partly by their own misgovernment, partly by the cessation of war in Europe. Bolivar took refuge in the negro republic of Hayti (see TOUSSAINT). There he received help which enabled him to return, and, after many vicissitudes, free his country. This he never forgot: though a noble and large slave-owner, he immediately on landing proclaimed the freedom of the blacks, thereby alienating the rich and ruining his private fortune; nor did he scruple to annul certain Acts of Congress intended to delay emancipation. Invited into Peru, he drove out the Spaniards, and became the defender of the Indians, hitherto oppressed by all. What better eulogy could be passed on him than that he was everywhere the protector of the oppressed?

Bolivar was a bad general and a worse administrator—not himself corrupt, yet caring little for the corruption of his favourites; but he had great insight in policy, and unexampled callousness to defeat; often overthrown, he always reappeared—an indispensable man by the admission even of his enemies. He saw the need of a stable central government: in his Peruvian Constitution, with a democratic legislature, he intrusted the executive to a dictator for life, who was to name his successor (Comte's Sociocratic Heredity). Like Danton he insisted on all constitutional questions being postponed till the end of the war. He rightly desired that all the colonies should unite against Spain: he erred in thinking that this defensive alliance could become a permanent union. When at length he saw his error, and agreed to the separation of Venezuela from Colombia, it was too late to recover his popularity. For the sixth time he resigned, and for once his resignation was accepted. He died soon after at Carthagena, on his way into exile. [S. H. S.]

T. Carlyle: "Dr. Francia" in *Miscellaneous Essays*. His body now lies in the Cathedral of Caraccas, the capital of Venezuela. Portrait by C. Gill.

TOUSSAINT L'OUVERTURE, b. 1746, d. 1803.

The revolt of the negroes of Hayti, leading to its separation from France as a Negro Republic, was an event of capital importance both in the abolition of slavery and in the victory of colonial independence. Amid the excitement caused by the Revolution, and the disputes of whites and mulattoes, the blacks unexpectedly rose (1791), and only wanted a leader to become masters of the colony. A month later TOUSSAINT, a pure negro and a slave from his birth, now 45 years old, after putting his master's family in safety, joined the insurrection. By his advice the negroes entered the service of Spain, which held the eastern half of the island. He soon showed his military talents. His repeated victories, making an opening everywhere, gained him his surname. A fervent Catholic, he gloried in fighting for his king, but the decree of the Convention emancipating the slaves worked an unexpected change. He joined the republic, and soon made it supreme in Hayti. Refusing the crown offered him by the English, saving the French governor from the mulattoes, and protecting all races alike, he became the real ruler of the country. His civil administration was in no way inferior to his conduct in war. Those who had been slaves were sunk in idleness: he commanded all to work. Vigilant, energetic, incorruptible, merciful to his enemies and severe to his friends when required by the public good, and entirely free from the prejudice of race, he alone was able to govern the colony. After seven years' informal dictatorship, to give his authority a surer foundation he sent home the draft of a constitution which provided for the freedom and equality of all races, he himself being created governor for life,

with power to name his successor. But before it reached Europe, the peace enabled Bonaparte to send a great armament against Hayti. Toussaint counselled submission; but when war broke out he threw in his lot with his fellows. Overpowered, he was nominally set free, but soon afterwards entrapped and carried to France. He died in eighteen months, from the hardships of his imprisonment in the Jura, and is buried within the Fort de Joux near Pontarlier. Six months later France abandoned Hayti for ever. [S. H. S.]

P. Laffitte: *Toussaint l'Ouverture*. He has been the subject of a famous sonnet by Wordsworth, and of a novel, *The Hour and the Man*, by Harriet Martineau.

FRANCIA (*José Gaspar*), b. 1757, d. 1840.

FRANCIA, like Bolivar, represented both the leading principles of South American statesmanship—local independence and republican dictatorship; but the first of these principles he carried further, being opposed not only to Spanish rule, but to the formation of large States by the revolted colonies. Essentially conservative and constructive, he supported the Spanish authority in Paraguay until he could effect its overthrow peacefully. On the failure of the parliamentary government then established, he was elected Dictator for three years (1814), and never let the Parliament meet again. While ready in case of Spanish invasion to co-operate with other States, he steadily opposed the attempts of the people of Buenos Ayres to force Paraguay into a union. In 1819 a plot was made, chiefly by the rich, to assassinate Francia and admit the enemy. It was discovered, and forty persons were executed—Francia's so-called Reign of Terror. Henceforth his authority was undisputed. Ruling in the old colony of the Jesuits, and not himself a Christian, he alone of the South American leaders dared oppose the clergy. He taught the Paraguayans to sow twice a year, and thus reap two harvests. All trades were regulated by the government, and foreign commerce entirely controlled—a socialism suited to the country's history, yet little successful. From fear of the anarchy of the neighbouring States, foreigners were forbidden to enter; if they did, they were not suffered to depart. Francia died universally regretted. He was scrupulously honest, inflexible in purpose, merciless even to his own family in his devotion to the commonwealth. On becoming Dictator, he commenced his reforms by reforming his own life. [S. H. S.]

T. Carlyle: "Dr. Francia," in *Miscellaneous Essays*.

CROMWELL (*Oliver*), b. 1599, d. 1658.

Comte has pointed out that the Dictature, which concentrated in itself the various political forces dispersed under Feudalism, always tended in England to the aristocratic rather than to the monarchical or normal type. The Conqueror and his successors took care that there should be no very great vassals, and that their fiefs should be dispersed. They availed themselves of some Saxon institutions to keep their barons in check. They made all Englishmen swear allegiance directly to the king, instead of to their immediate lord only as in France. Hence the political side of Feudalism was never fully developed in England. But the comparative weakness of the barons individually drove them to act together in a parliamentary way, and to seek the support of the Commons in their attempts to limit the royal authority. Again, the nobility never formed a caste, or, at all events, a close caste, in England. In the eye of the law no one was a noble who was not a peer; and those sons of a peer who did not succeed to his title were commoners. The landed gentry of England would in France have ranked as nobles. Till the reign of Henry VI. the power of the Crown was gradually reduced by the encroachments of Parliament—in other words, of the aristocracy, titled and untitled; for the burgess members were of much less weight. The Wars of the Roses, and the immense confiscations which followed, destroyed the old military baronage, thereby depriving Parliament of the insurrectionary force which had always lain at its back; and from Edward IV. to Henry VIII. it seemed as if the Dictature was to be of the monarchical type here as elsewhere. But the nobles and gentry of the Tudor times, still weaker individually than the corresponding class under the Plantagenets, were all the more driven to rely on parliamentary action. Even during the reign of Elizabeth there were signs that, reinforced by the rapidly rising commercial class and stimulated by religious zeal, they would try to check the monarchical dictature.

The resistance to Charles I. was headed by the nobility and gentry up to the execution of Strafford, who, in imitation of Richelieu, had aimed at exalting the crown and depressing the aristocracy. After the death of Strafford many of the aristocracy, thinking that they had now secured a substantially aristocratic government, declined to proceed any further in an anti-royalist direction, and rallied round the King. But the party who drew the sword against him was also essentially an aristocratic party. Of a hundred and nineteen peers who were summoned to the Long Parliament not more than sixty joined the King in the civil war, while about thirty held with the Parliament. The House of Commons fairly represented the gentry, and more than two-thirds of its members remained at Westminster. The nation, in truth, was divided on religious rather than on social lines. Of the lower orders, those who were not religious partisans were neutral, or followed the social superiors

with whom they happened to have relations. As the war went on, the resistance to the King no doubt assumed more of a democratic character; but the leaders all along were, almost without exception, of the rank that would have been called noble on the Continent. The Republicans were a small minority, and most of them confined democratic rights to "the saints." But they held the sword, and so for a time were masters. When this premature burst of democracy —if such it may be called—had been extinguished by the Restoration, the struggle at once recommenced on the old pre-rebellion lines. In 1688 the crown finally succumbed, and the aristocratic dictature, to which England had always tended, was not again disturbed till 1832.

Oliver CROMWELL belonged by birth and fortune to the landed gentry. He sat in the third and fourth Parliaments of Charles I., but did not distinguish himself till he entered the Long Parliament, at the age of 41, though he was known in his own neighbourhood as a zealous Puritan. As early as November 1641 we find him proposing that Parliament should pass an "ordinance" for assembling train-bands. This was the first time that an "ordinance" (that is, a parliamentary edict without the royal assent) was proposed, or that any allusion was made to the advisability of preparing for war. But Cromwell did not become a conspicuous figure till the fighting began, when he soon attracted attention by his energy and success. Though he thus began soldiering late in life, he brought to it all the qualities of a great captain—prudence, resource, penetration, organising ability, skill, strategical as well as tactical, and undaunted courage.

In seeking the key to Cromwell's policy, we must never forget that he cared for religious freedom even more than for political freedom. Hence his chief object was to checkmate the Presbyterians, whose ideal was a limited monarchy—that is, an aristocratic dictature—with the Established Church remodelled on the Presbyterian pattern, and no other religion tolerated. Cromwell, personally, was for a limited monarchy, because he always saw clearly that England naturally gravitated to that form of government. But he had no sentimental reverence for the monarch—"he would fire his pistol at the King as soon as at another if he met him in battle;" and if religious freedom could be secured in no other way, he was prepared for a Commonwealth. This was the feeling of many other Independents, though some were ardent Republicans. The Presbyterians, on the other hand, were as averse to religious freedom as to Episcopacy, and they were prepared, after the war, to reinstate the King, on terms which they had formerly thought dangerous to political liberty, if he would concede their ecclesiastical claims. Like Cromwell, in fact, they were ready to sacrifice something of their political ideal in order to realise their religious ideal. They were strongest in Parliament and in the country; but Cromwell could rely on the army, which he had carefully weeded of Presby-

terians and filled with "Independents"—men, that is, of several religious sects, who agreed in abhorring ecclesiastical despotism of any kind.

After the defeat of the King, both parties offered to reinstate him; the Presbyterians bargaining for the establishment of their ecclesiastical system; Cromwell willing that the Established Church should be Episcopal, if complete toleration were guaranteed. Charles blindly thought he could play off one against the other, and so recover his old authority, when, as he wrote to the Queen, "he should know how to fit them all with a hempen cord." In pursuance of this design he stirred up the second civil war and Scotch invasion (May—August 1648). Whereupon Cromwell, after crushing the rebels and Scotch, purged the House of Commons of the Presbyterian royalists, cut off the King's head, and frankly adopted the Commonwealth (January 1649). It is difficult for us in the twentieth century to measure the splendid audacity of such a step in the seventeenth.

The handful of Independents who constituted the House of Commons after Pride's Purge—the "Rump"—governed England for over four years, supported only by the army. Their rule was deeply resented by the large majority of the nation, Presbyterians as well as Cavaliers. They evidently intended to perpetuate their own personal power without any appeal even to their own party in the country, which the most favourable computation put at not more than two-sevenths of the nation. Cromwell held that an irresponsible and absolute assembly, sitting all the year round and exercising not only legislative but executive and, in political matters, even judicial functions, was a despotism which could not and ought not to be permanent. He says himself: "The nation loathed their sitting. I knew it; and, so far as I could discern, when they were dissolved, there was not so much as the barking of a dog, or any general and visible repining at it. . . . . Poor men, under this arbitrary power, were driven like flocks of sheep by forty in a morning, to the confiscation of goods and estates." He was no more willing than the Rump to appeal to the *nation*. But he claimed, as a step towards a more normal régime, that a new Parliament should be elected by all citizens who had supported the good cause; others to be excluded from the poll for the present. The Rump, on the other hand, when driven to prepare for a new Parliament, proposed that no voters should be excluded from the poll, but that the members of the Rump should retain their seats without re-election, and should have the power of invalidating other elections where they saw fit. It was their attempt to hurry this bill through in one sitting, and in breach of a pledge given to the Committee of Officers the day before, which led Cromwell to dissolve the Long Parliament.

The stroke was a thoroughly popular one. The army, by whose authority Cromwell acted, was responsible for the existing state of affairs. It was composed of the *élite* of the nation, and its right

to act for the nation was quite as legitimate as that of the Rump. There is not the least reason to suppose that Cromwell desired at this time to make himself ruler. He and the officers devolved all power on an assembly of 140 Puritan Notables, not elected but selected—a thoroughly Positivist expedient. If a political assembly is to be judged as a whole by the private worth of its individual members, this "Little Parliament" was probably the worthiest assembly that has ever sat in England. Its aims, indeed, were too high and excellent for the times; and after five months of unpractical discussion it became discouraged and resigned its powers. The officers then drew up a constitution which amounted to a narrowly limited monarchy, with Cromwell as monarch under the title of Protector—the old English term for Regent; and from this time (December 1653) till his death he was the real ruler of England.

It would be impossible here to narrate the Protector's various attempts to obtain a parliamentary sanction for his power thus irregularly acquired. At last in 1657, after about 100 out of 460 members had been excluded, the remainder drew up a scheme of government, which was practically a restoration of the old constitution, with a King and two Houses of Parliament, but with stricter limitations on the royal authority than exist—in law—now. The title of King, Cromwell declined in deference to the unconcealed jealousy of the Republican officers. But he was convinced, and rightly, that the nation would never settle down quietly until the title as well as the power was restored. It may be regarded as certain that if he had lived a little longer this would have been effected, and that great numbers of Royalists would have thenceforward given him a more or less hearty support. Such a government would have been a return to the aristocratic dictature; for it was essential in Cromwell's eyes to restore the House of Lords, the abolition of which, as Comte justly remarks, was really a more revolutionary step than the abolition of the monarchy (*Phil. Pos.* v. p. 470). But death overtook him prematurely in the sixtieth year of his life and the sixth of his Protectorate, before he had exercised the right conferred on him by the constitution of nominating his successor.

After the Restoration political and religious rancours did their worst with Cromwell's memory. Royalists and democrats combined to blacken it. He was long paradoxically portrayed as a cold-blooded hypocrite, a frantic enthusiast, an ambitious egoist, a vulgar buffoon. He now shines forth in the judgment of the civilised world not only as the greatest ruler England has had, but as a man of sincere piety, sober intellect, and thorough rectitude of purpose. The characteristic which most struck his contemporaries was his extraordinary self-reliance, which no dangers, military or political, could for a moment daunt or disturb. His bitter enemy Clarendon admits that "he was not a man of blood." He was indeed most merciful and generous to his foes, though never to the extent of

weakness. His foreign policy was to be friendly with France, which was well; and to conquer a maritime and colonial empire for England at the expense of Spain—which was not so well. But here his judgment was warped by his narrow theological creed, as it was also in his treatment of the Irish Catholics. This, however, is the part of his conduct of which his countrymen have always been proudest. Even Clarendon remarks with a certain exultation that "his greatness at home was but a shadow of the glory he had abroad."

[E. S. B.]

Carlyle: *Letters and Speeches of Cromwell.* Frederic Harrison: *Oliver Cromwell.* C. H. Firth: *Cromwell.* J. Morley: *Oliver Cromwell.* S. R. Gardiner: *A Hist. of the Great Civil War; A Hist. of the Commonwealth and the Protectorate* (continued by C. H. Firth). Cromwell was buried in Westminster Abbey, but his body was displaced at the Restoration and hung in chains at Tyburn. Several Portraits, N.P.G.—one by R. Walker; drawing by S. Cooper, Sidney Sussex College, Cambridge.

MODERN SCIENCE.

THE choice of a biologist, as the chief representative of modern science, instead of one of the great masters in Geometry or Astronomy, has been matter for surprise. But there is a question prior to the choice of any special name: namely, which of the sciences has done most in modern times to prepare the way for the Positive treatment of social and moral facts? Great assuredly have been the services of Astronomy in this respect; nevertheless it may be shown that those of Biology have been even more direct and efficient.

How deep and far-reaching were the consequences following from the discovery of the Earth's motion, the Catholic Church was not slow to feel. The special dogmas of Christianity became less easy to accept when the earth was no longer regarded as the centre round which the nine crystalline heavens revolved daily. Earth lost its absolute value. It was henceforth difficult to regard it as the central scene of God's work. As an appendage to one out of countless myriads of stars, it was of small account in the Universe: it was important only as the home of Man. In other words its absolute or theological position was transposed into one that was purely and simply human. This was indeed a mighty change.

Yet though this revolution was reserved for modern times, most of its scientific conditions had in truth been fulfilled by the geometers of Greece. From a letter of Archimedes to Gelon, king of Syracuse, we know that the hypothesis of Copernicus had been distinctly propounded by Aristarchus of Samos. Hipparchus the founder of Trigonometry, and the discoverer of the precession of the equinoxes, had nearly all the knowledge of Copernicus, and far greater intellectual power. When, owing to social necessities elsewhere described, Greek science was arrested, it was on the threshold of the great geometrical and astronomical discoveries of the Renascence.

For Biology, on the other hand, the preparatory steps taken by the Greeks were far fewer and less complete. Aristotle indeed had instituted the comparative observation of living bodies; and he had laid down certain large and far-reaching principles of vital action, the significance of which has remained unappreciated till our own time. Nevertheless at the threshold of exact biological research stands the science of Chemistry. And Chemistry cannot

be said to have passed from the metaphysical to the positive stage till Lavoisier and Cavendish had analysed air and water, and had explained the facts of oxidation and combustion.

In common, then, with Physics and Chemistry, and in contrast with Mathematics and Astronomy, Biology is a modern science. It remains to show that among modern sciences its intellectual, social, and moral reactions have been more important than the rest.

It is obvious in the first place that scientific knowledge of a living organism must precede that of a complex of organisms. In other words, as Chemistry is the preamble to Biology, so is Biology the preamble to Sociology, and therefore to that final and comprehensive study of Man which regards him as the resultant of the social state. The observations hitherto made by philosophers and historians, so far as they contain positive truth and are not merely metaphysical abstractions, are truths of *function*, disconnected from the corresponding *organ*. They fail, therefore, in definiteness and precision. This failure is specially conspicuous in thinkers of such remarkable positivity as Hume and Kant. The speculations of Gall, crude and premature as many of them are, illustrate the stimulating effect of attributing such functions as benevolent impulse or destructive passion to a definite portion of brain tissue, even though the adjustment of function to organ remains as yet utterly provisional and uncertain.

It is needless to refer to such questions as those of pauperism, population, hygiene, race, climate, as examples of the close relation of Biology to sociological research. There is a logical motive for the special prominence given to Biology of even greater moment. It is the science which conclusively dissipates the ambitious and futile Utopia of reducing the phenomena of the universe to a single mathematical law ; and which thus leads us on to Humanity as the only possible centre to which man's speculative efforts can converge.

The cycle of changes in organic matter from reproduction to death, the perpetual composition and decomposition of substance taken in from and given out to the environment, the continual adjustment of internal spontaneity to external forces which Comte indicates as the essential fact of life : all these constitute a new order of things to which nothing analogous is to be seen in the inorganic world. Every action of a living thing involves, doubtless, a series of physical and chemical changes : but as bricklaying is not architecture, so these physical and chemical facts are not life. In studying the facts of sensation, and all that follows from them, every instrument of physical research must be employed ; but wholly different methods are also needed.

And thus it is that the study of life leads us to the conviction of the impossibility of a Cosmic or Objective Synthesis, in which all the facts within our ken are conceived of as resulting from a single law. We find from it that the only possible Synthesis is that in which each order of phenomena is studied inductively upon its

own merits. Due regard is paid to the obvious dependence of the more special and complicated order upon the more general and simple ; but the dream of Monism is finally and for ever abandoned. Of such a Synthesis the only possible centre is Man.

The weeks of the month of Bichat are thus arranged :—

The first week treats of the foundation of Physic, including mechanic, astronomy, acoustic, electricity. It includes the founders of modern astronomy—Copernicus, Kepler, and Tycho : Huyghens, who after Galileo is the principal founder of celestial mechanic : Bradley, who estimated the velocity of light : Volta, the discoverer of current electricity. Galileo presides over this week.

The second week deals chiefly with the completion of celestial mechanic by the transcendental calculus. We have the preparation for this calculus made by Vieta, Fermat, and Wallis : the applica- of it to physical problems by Clairaut, Euler, D'Alembert, Fourier : its assimilation to the ordinary calculus by Lagrange. Newton, whose mathematical genius transformed the vague hypothesis of planetary gravitation into scientific certainty, takes the chief place here. Descartes and Leibniz, whose mathematical initiative equalled Newton's, are spoken of elsewhere.

The third week tells of the chemists of the 18th and early 19th century. Lavoisier, who by his systematic and precise explanations of oxidation and combustion, and by his overthrow of the phlogistic hypothesis, first co-ordinated chemical facts into a Positive science, holds here the first place.

In the fourth week, Biology, from Harvey onwards, is represented. We have Boerhaave and Stahl, the chiefs respectively of the mechanical and the spiritualist school : Linnæus and Bernard de Jussieu representing the chief problems of classification : Lamarck and Blainville, who enlarged the sphere of the comparative method : Broussais, who incorporated pathology with physiology. Gall presides over the week, as the first investigator of the great biological problem which forms the transition to Sociology.

[J. H. B.]

BICHAT, b. 1771, d. 1802.

François Xavier BICHAT was born November 14, 1771, at Thoirette, in the department of Ain. His father was a physician, and sent him to study medicine at Lyons, though the boy's bent was towards mathematics. In 1793 he went to Paris, and studied surgery under the great master of the art, Desault, who recognised his genius, and adopted him as his son; a service which Bichat well repaid by collecting and editing his master's works, on Desault's death two years afterwards. Bichat then opened a school of anatomy, and carried on, with energy perhaps unparalleled in the history of science, the series of anatomical investigations and experiments on which his discoveries were founded. His zeal undermined his health; and an accidental fall from the steps of the Hôtel Dieu brought on the illness from which he died, on the 22nd July 1802, in his 31st year. His premature death was regarded by Comte as one of the most tragic events in the history of Humanity; and, in speaking of it in his public lectures, he was unable to suppress his emotion.

Bichat's two great works are the *Recherches Physiologiques sur la Vie et la Mort*, published in 1800, and the *Anatomie Générale*, published in 1801. Both works find a place in the Positivist Library. In the preface to the latter, Bichat briefly distinguishes his position, on the one hand from the Materialist school represented by Boerhaave, who would treat Biology as a mere corollary of Physics, and on the other from the Metaphysical and Spiritualist school, who explained Life by imaginary entities, such as Soul, Archê, Vital Principle, and the like. Between these Bichat defined with masterly precision the Positive standpoint. Here no attempt is made to explain Life, as in Positive Physics no attempt is made to explain Gravitation; the object of the student is to observe and to co-ordinate the facts of Life, and to connect these facts as precisely as possible with the structures in which they take place, and with the environment surrounding them.

But the connection of structure with function remained inexplicable so long as the observer was content to begin and end with the complicated assemblage of structures called an organ. In looking at the hand, the foot, the heart, the lungs, we see organic material moulded into various shapes for distinct purposes. And while one class of observers devoted themselves to the mechanical action of these organs, another class launched out into vague and nebulous speculation as to the vital principle informing the whole. Bichat threw an entirely new light upon the discussion by concentrating attention upon the tissues, or webs, of which every organ was composed, and each of which was common to all or to most organs. Aristotle, as Bichat knew, had led the way to this field of study by his luminous distinction between homogeneous and heterogeneous structures.

(Aristotle, *de Part.* ii. 1, 5.) But the far-reaching import of this distinction remained unperceived till the time of Bichat.

Distinguishing in each organ the component tissues, connective, cartilaginous, osseous, muscular, nervous, etc., and demonstrating the existence of these tissues throughout the body, Bichat was able to conceive of vitality no longer as a mere mechanical process, nor again as the result of a mysterious entity, but simply as the property of tissue, and varying in character with each tissue considered. From this moment the study of Life became a Positive Science. As the physicist studies the behaviour of electric or gravitating bodies without attempting to explain the ultimate nature of gravitation or electricity, so the biologist could study the properties of each vital tissue without losing himself in speculation upon the ultimate nature of Life.

The first-fruits of this fertile principle were speedily gathered. It led the way to the second great conception of Bichat—also hinted by Aristotle, and left undeveloped by subsequent thinkers—the distinction in every animal organism of the life of "relation"—that is to say, of the functions of sensation and motion, which bring it into contact with distant objects in the environment—from the vegetal or nutritive life common to animals and plants. Co-ordinated with this profound distinction were his luminous observations on the symmetry of animal organs and the intermittence of animal functions, as contrasted with the asymmetry and continuity of vegetal organs and functions.

His definition of Life is remarkable, though it contains an error. In his great work entitled, *Physiological Considerations on Life and Death*, the opening proposition is as follows: Life is the sum of the functions by which Death is resisted. He goes on to explain that all the surroundings of living bodies tend to destroy them, missing the point that Life involves co-operation with the environment rather than antagonism. Nevertheless what follows shows an insight into the great principle of correspondence of organism with environment afterwards developed by Comte. The nature of Life is unknown; it can only be appreciated by its phenomena. The most general fact of Life is the continuous action and reaction of external forces and the living organism, the proportionate degree of each varying with age. His researches on Death were inspired by the same wide grasp, the same freedom from metaphysical and literary vagueness. He conceived of Death as beginning with a failure either of the heart, the lungs, or the brain. Considering in turn the cases in which each of these is the first to give way, he examines, with extraordinary breadth and fulness the influence of this failure on the other two, and on the whole bodily structure.

There are many departments of biology into which Bichat, within the few years allotted to him, could not enter. He left wholly untouched the vast field of natural history, cultivated with such admirable zeal by his contemporary Lamarck. It is the more

remarkable that, confining his attention to human structure, he should have grasped so firmly the general conception of Life as distinct from what was special to man's organisation ; and that he should have been so deeply penetrated with the spirit of the comparative method. It was the comparative study of organs, and the contrast of their condition in health and disease, that led him to the discovery of their common membranes. The comparative study of structure at various ages, also of the different forms of death, led him in the same way to important results.

Another field from which the brevity of his life excluded him was that in which Cabanis, Leroy, and Gall did such good work, the study of the mental and moral functions of animals. It is calamitous that Bichat had no time to follow and to correct Gall in his researches on the functions of the brain. Much waste of effort, due to Gall's rashness and the exaggerated opposition which it aroused, would have been spared, had this been possible. On the whole, however, a careful study of his two great works, and of the deep and potent impulse imparted by them to biological research, will lead to the conviction of the intrinsic superiority of Bichat to the great biologists of his time, and indeed to all thinkers upon this subject since the time of Aristotle. [J. H. B.]

F. X. Bichat : *Recherches Physiologiques sur La Vie et la Mort* ; *Anatomie Générale*. *Phil. Pos.* iii. 40, 41, 43, 44. *Pos. Pol.* i. 524 ; iii. 528. Bichat is buried in Père La Chaise, Paris. Sketch by Boilly (engr.).

COPERNICUS, b. 1473, d. 1543.

Nicolas Copernik was the son of poor parents, perhaps serfs, and was born in Thorn, a Polish town ceded in 1311 to the Teutonic Order, but resumed by Poland in 1466. One of his uncles, who afterwards befriended him, was Bishop of Warmia, and attached to the cathedral of Frauenburg, near the mouth of the Vistula. COPERNICUS was educated at home, and afterwards graduated Doctor of Medicine at Cracow University. For some years (about 1500 A.D.) he made astronomical observations, and taught mathematics at Bologna and Rome. Soon, however, he returned home as canon at Frauenburg, and spent the rest of his life in church duty, medical work amongst the poor, and astronomical research. His astronomical instruments were poor, and he regretted his inability to take better observations. He was struck with the complexity of the so-called Ptolemaic system, and found in ancient authors abundant suppositions tending to simplify the theory of the heavenly bodies. One of these he took and used with success. (*See* ARISTARCHUS.) His book *De Revolutionibus Orbium Cœlestium* begins with a remarkable epistle to the Pope, Paul III., in which he refuses

to argue of the truth of his theories; these he says he puts forth merely as leading to results of calculation which agree with observations. The phrase "Copernican System" suggests that our debts to Copernicus are greater than in truth they are. For it was not till Kepler, Galileo, Newton, and Bradley (to say nothing of others) had lent their aid, that the system could be said to be finally established. Without denying Copernicus's claim to be a great mathematician, a truth-seeker singularly free from contemporary trammels, and a successful discoverer, it is important to understand clearly that his view of the solar system remained at his death a brilliant conjecture merely, against which very strong objections could be urged. He was not free from the metaphysical illusions of his age; maintaining, for instance, that the sphere is the most perfect figure, as a ground for inferring the sphericity of the universe; and he accounts for the rectilinear fall of a stone, and the supposed circular motion of the planets, by the statement that wholes move with circular motion, and parts separated from wholes in rectilinear motion. Also, owing to his acceptance of the circle instead of the ellipse as the path of planetary orbits, the alleged simplicity of the system as presented by him proves, on close examination, to be much exaggerated. Copernicus was not a mere speculator: he was a diligent and conscientious observer of the heavens, though working with very imperfect instruments. The periodic inequalities of planetary motions were as obvious to him as they had been to Ptolemy. Therefore, on the assumption of circular motions, he was compelled to resort, though not to the same extent as the older astronomers, to the devices of epicycles and eccentrics; the eccentricity of the sun varying in the case of each planet.

While admitting all this, it remains none the less true that three fundamental facts of astronomy, (1) the apparent diurnal rotation of the sky, (2) the apparent stations and retrogradation of the planets, (3) the precession of the equinoxes, became far more easy to conceive on his hypothesis than on the accepted view. Taking the last point only, it was needful, on the Ptolemaic system, to suppose not merely that the sky revolved round the earth in 24 hours, but that it was endowed with an additional motion of an opposite kind, taking place in 250 centuries. For Copernicus it was only needful to conceive the earth's axis as slightly varying its direction, describing a cone in the course of the period in question, and thus pointing every year to a slightly different part of the sky.

The shock to received ideas—not in astronomy only, but in man's view of his place in Nature—that would follow from the general acceptance of his views was foreseen by him, and he was evidently anxious to avert it. It was with great reluctance that he consented to the publication of his book, which he had kept in manuscript for many years. He avowedly regarded his view as a conjecture merely; destined, like other hypotheses, to assist astronomical research. So long as the new doctrine was confined to the learned, the Church

did not care to interfere with it. More than seventy years passed before the work of Copernicus was placed upon the Index.

[J. H. B. & C. G. H.]

A. Berry: *A Short Hist. of Astronomy.* J. L. E. Dreyer: *Planetary Systems from Thales to Kepler. Penny Cyclopædia,* COPERNICUS. H. Höffding: *A Hist. of Modern Philosophy.* Comte: *Astronomie Populaire,* part iii. ch. v. and vi. Copernicus is buried at Frauenburg Cathedral. Portrait (copy), R.S.

TYCHO BRAHÉ, b. 1546, d. 1601.

Half-way between Copernicus and Kepler, comes the great observer who more truly than his predecessor may be called the founder of modern astronomy. For astronomy does not consist in theories of the solar system, true or false: it is the science which, by induction from accurate observations, enables us to predict the position of the heavenly bodies at any given future time. Towards this result Tycho Brahé made further advance than any previous astronomer since the time of Hipparchus.

He was born at Knudsthorp, in Denmark, of an aristocratic family, who discouraged all intellectual pursuits. By the help of an uncle he was sent to the University of Copenhagen, where he began, as a boy of 14, to study the angular distances of stars with no better instruments than a pair of compasses. Afterwards he went to Leipsic, nominally to study jurisprudence, but really devoting himself to astronomy, and especially to the construction of improved instruments. In 1576 Frederick II. of Denmark offered him the island of Huëne as a site for an observatory, erected at great expense, with the name of Uranienborg, and furnished with instruments far superior to any that had yet been made. Here he observed the stars and planets for twenty years. At the end of that time, Frederick II. being long dead, a quarrel arose with the government, Tycho's establishment was broken up, and he left the country. He found a new patron in the Emperor Rudolf, and in 1598 settled near Prague. His connection with Kepler is spoken of elsewhere. Tycho died 24th October 1601.

He rejected the Copernican hypothesis, and not without reason. If the earth moved round the sun there would be a slight difference, he thought, in the apparent position of each star at opposite points of the orbit (annual parallax): but none such was discernible till the 19th century. Therefore the whole orbit of the earth—185,000,000 miles in diameter—must be a point without magnitude in comparison with the distance of the nearest star. This seemed inconceivable to Tycho, and the more so that to the naked eye (the telescope being still undiscovered) the stars themselves seemed to have a visible diameter; so that it followed, if Copernicus were right, that the stars were of larger circumference than the whole orbit of the earth.

For the Copernican hypothesis he substituted one equally useful for astronomical purposes, according to which the earth is repre-

sented as fixed, while the other planets moved in circles round the sun, which revolves annually in the ecliptic : the heavens being carried round the earth in twenty-four hours. His pupil, Longomontanus, so far modified this as to accept the diurnal rotation of the earth, while maintaining the annual revolution of the sun around it.

Of Tycho's observations, the basis on which Kepler began to build, no adequate account can be given here. He renewed the work of Hipparchus in defining the precise position of a large number of stars ; he discovered new laws of variation of the moon's motions ; he was the first to throw light on the path of comets, which, as he said, would pass through and through the crystal spheres, if such existed ; and he had far more accurate views of the corrections to be made for parallax and refraction than any previous astronomer.

[C. G. H. & J. H. B.]

J. L. E. Dreyer : *Tycho Brahé.* A Berry : *A Short Hist. of Astronomy.* Delambre : *Astron. Moderne.* Tycho is buried in the Teynkirche, Prague. Portrait by Mierevelt, R.S.

KEPLER (*John*), b. 1571, d. 1630.

The audacious and untiring genius who revealed the laws of planetary motion was born at Weil in Würtemberg, 21st December 1571, a seven-month child of sickly constitution. His parents, poor gentlefolk, had made an unhappy marriage, and the family life was never free from trouble. KEPLER was educated at the monastic school of Maulbronn and afterwards at Tübingen, where he took the degree of Master in 1591.

In 1593 he was appointed astronomical lecturer at Grätz in Styria, having as yet paid no special attention to astronomy. Like other young men of his time, he accepted the hypothesis of Copernicus with enthusiasm. Henceforth his life was devoted to the investigation of the laws that bound together the different elements of the solar system, now regarded as holding its own place in the world entirely independent of the fixed stars around it. In his strong conviction that such laws existed, Kepler at the outset of his career stood alone. To find them he built up, with every resource of a most powerful imagination, hypothesis after hypothesis—all of them daring, many extravagant ; but all without exception controlled by observation of the facts, amidst which his inductive genius at last reached the controlling uniformities.

About three years after his appointment at Grätz, he published his *Mysterium Cosmographicum*, containing the first of these conjectures, inspired by a conception which recalls the early Pythagorean view, that the orbits of the planets corresponded to circles inscribed or circumscribed round one of the five regular solids. He was saved from further extravagance of this kind by his connection with Tycho Brahé in 1599. This greatest of observers was

now in Bohemia, preparing astronomical tables under the patronage of the Emperor Rudolf. He recognised Kepler's genius, and procured his official appointment as his assistant. The connection lasted less than two years, for Tycho died in October 1601. Kepler's debt to him is incalculable. He inherited his vast store of facts, and his habits of accurate and patient observation, without impairing the creative energy of his own master-spirit.

Continuing Tycho's work, Kepler devoted himself to the planet Mars, of which the variations in velocity and in solar distance were unusually great. Amidst all these variations, Kepler found at last the constancy he sought. Taking the two extreme positions of Mars when nearest to and farthest from the sun, he saw the angular velocity to be always inversely proportional to the square of the planet's distance. Extending this to other positions of Mars, and then to other planets, he reached his first law, commonly stated thus : The line drawn from the sun to the planet (*radius vector*) traces out on the plane of the orbit equal areas in equal times.

The second of his laws, that the planets move in ellipses, the sun occupying one of the foci, was not reached without examining various oval curves superficially resembling the ellipse, but not satisfying the condition that the sum of the distances of the moving point from two fixed points should be constant. The difficulty however here, as Comte remarks, was philosophic rather than scientific. It cost a struggle finally to abandon the cherished principle of circular motion.

These two laws were announced in 1609, in his work entitled *New Astronomy*. It was not till ten years later that he discovered his third law, as to the relation between the mean distances of the planets from the sun, and their times of revolution, or periods. Kepler had long known that the period increased with the distance. But what precisely was the law of this increase ? After laborious trial he found it to be that the squares of the periodic times are proportional to the cubes of the mean distances. Taking the mean solar distance and the period of the Earth as unity, if, in any other case considered, the distance be 4 or 9 times greater, the time of revolution will be 8 or 27 times longer. Knowing one of these quantities, the other can be foreseen ; and the long period of Uranus was, in fact, thus predicted by Herschell. It remained for Newton to deduce this inductive law mathematically from the laws of motion.

Kepler had a strong, though very vague, conception of planetary gravitation. " Gravity," he says, in the introduction to the work on Mars, " is a mutual tendency of similar bodies to unite. Heavy bodies do not tend to the centre of the world, but to that of the spherical body of which they are a part. If the earth was not spherical, bodies would not fall vertically to its surface. If the earth and the moon were not kept at their respective distances, they would fall one on the other ; supposing them of the same

density, the moon would pass through $\frac{5}{3}\frac{3}{4}$ of the distance, the earth through the remaining part." He attributed the tides also to their true cause—the action of the moon on successive points of the ocean as the earth rotated.

Between these floating conjectures and the solid ground of the *Principia* there was a wide gulf which only the Calculus of Leibniz or Newton could bridge over. But they show the soundness of Kepler's scientific instinct. In the same work is to be found the earliest indication of the First Law of Motion : that a body unaffected by external force remains at rest or in uniform rectilinear motion.

It is too often forgotten that, while pursuing his purely scientific researches, Kepler was incessantly labouring at the practical business of his life, bequeathed to him by Tycho—the construction of astronomical tables. These, bearing the name of the Emperor Rudolf, appeared at last in 1627, with a long historical title-page, indicating the part which Tycho, Frederic II. of Denmark, three successive Emperors of Germany, and finally Kepler himself, had taken in their construction. Without the invention of logarithms, which Kepler eagerly adopted from Napier, these tables could hardly have been constructed ; and they figure side by side with Kepler's ellipse and Galileo's telescope, in the allegorical frontispiece.

Kepler died of fever on the 15th November 1630, and was buried in the cemetery of St. Peter at Ratisbon, where a monument was erected in his honour in 1808. [J. H. B.]

A. Berry : *A Short Hist. of Astronomy*. J. L. E. Dreyer : *Planetary Systems from Thales to Kepler*. Delambre : *Astronomie Moderne*. H. Höffding : *A Hist. of Modern Philosophy*. Comte : *Astronomie Populaire*, pt. iii. ch. vi.

HALLEY (*Edmund*), b. 1656, d. 1742.

HALLEY, the son of a rich soap-boiler of Shoreditch, was born in Haggerston, November 8, 1656. He was distinguished in classics and mathematics at St. Paul's School, from which he went to Queen's College, Oxford, taking a 24-foot telescope with him. But he left Oxford without a degree in 1676, and sailed for St. Helena, to study the southern stars. There, on November 7, 1677, he observed a transit of Mercury across the sun's disk, which first suggested his celebrated method of finding the solar distance. He returned from southern latitudes with the precise determination of 360 stars, and with important observations on the retardation of the pendulum as the equator was approached.

He now devoted himself to the theory of the moon's motions—a subject of urgent interest to navigators. He proposed to study the moon's course through what the Chaldeans called a *Saros* [see BEROSUS], a period of 223 lunations (18 years and 10 to 11 days), at the close of which she resumes her former position with regard to the earth and sun. How far Chaldean observations were of use to him may be doubted. The problem of explaining planetary

motions by gravity occurred to him, as also to Wren and Hooke. But between this vague possibility, and the mathematical demonstration that Kepler's third law followed from the conception of gravity as a force acting inversely as the square of the distance, there was a great gulf. In August 1684, visiting Cambridge, he found that Newton had solved the problem, though in no haste to publish the solution. To Halley's earnest solicitations the composition of the *Principia* is due.

In 1698, in a ship supplied by William III., he made fresh explorations of southern latitudes, proceeding as far as 52°. In 1703 he became Savilian Professor at Oxford ; translated some unknown works of Apollonius from the Arabic, which he learnt for this purpose, and produced the classical edition of the *Conics* of this great geometer. His intellectual energy was inexhaustible. Eighty-four papers were contributed by him to the Royal Society : vital statistics, magnetic variations, improved diving apparatus being some of the subjects treated. In astronomy, his principal achievements were his studies of twenty-four cometary orbits, from the similarity of three of which he predicted the recurrence in 1759 and 1835 of the comet of 1682 ; his discovery of the long inequality of Jupiter and Saturn ; and his method for determining the solar distance by the transit of Venus.

Halley died 17th January 1742. He is buried in the churchyard of Lee, near Greenwich. [J. H. B.]

Dict. of Nat. Biog. A. Berry : *A Short Hist. of Astronomy.* Comte : *Astron. Populaire*, pt. iii. ch. x. Portrait, R.S. ; by Murray, Bodleian, Oxf.

HUYGHENS (*Christian*), b. 1629, d. 1695.

HUYGHENS, whose father and brother held high diplomatic appointments, was born at The Hague, and educated at Leyden University. He lived mainly in Holland, but visited England and Denmark, and spent fifteen years in Paris, whither Colbert had invited him (1666-81). He was even to the end of his life singularly accessible to new ideas, appreciating warmly the *Principia* of Newton, which was not published till Huyghens was 58. He was the first great expounder of the undulatory theory of light, as opposed to Newton's corpuscular theory ; and he checked it successfully, as Newton could not check the corpuscular theory, by the phenomena of simple and double refraction. He improved the telescope, and discovered Saturn's ring and one of his satellites. But it is not so much for these matters that Comte placed him in the Calendar as for his contributions to dynamical science, in which he continued the work so admirably begun by Galileo. "Galileo," says Comte, "with the subsequent help of Huyghens, laid the foundation of rational mechanics. Then upon this two-fold basis" (of celestial geometry and rational mechanics) "Newton constructed his system

of celestial mechanics." The *Horologium Oscillatorium* of Huyghens, published in 1673, is spoken of by Comte as "perhaps the most admirable example of special research that the whole history of the human mind thus far presents." It must be regarded as the most direct preparation for the *Principia* of Newton, which appeared thirteen years afterwards.

His discussion of the motion of a pendulum is the first mathematical investigation of the motion of a system of interdependent points as contrasted with the motion of a particle: based on the axiom that the centre of gravity of such a system could not rise higher than the point from which it fell. He showed that the swings of a pendulum moving in a circular arc were not, as Galileo had thought, strictly isochronous, especially when the arc was wide. If the swings were to be in equal times the extremity of the pendulum must move not in a circle but in the evolute of a circle, that is, in a cycloid. The theory of evolutes, of immense importance in the history of geometry, is of Huyghens' creation. If a string be stretched on any curve, and, one end being fixed, be unwound from the other, a curve will be described by the moving point depending on the nature of the original curve, and called its evolute. In the case of the cycloid, Huyghens showed that the evolute was a cycloid also. Of equal or perhaps greater importance was his investigation of centrifugal force: that is, of the composition of forces in circular motion. He went so far as to show that centrifugal force varied directly as the radius, and inversely as the square of the time of revolution. Here we are brought to the threshold, but not beyond the threshold, of the *Principia*. [C. G. H. & J. H. B.]

W. W. Rouse Ball: *Hist. of Mathematics*. E. Mach: *The Science of Mechanics*. Condorcet: *Éloges*. *Phil. Pos.* i. 18. *Astronomie Populaire*, p. 401. *Pos. Pol.* iii. 481, where, however, the reference should read, "Galileo and Huyghens founded rational mechanics." Comte speaks of the work of "the great Dutch geometer" in the measurement of curvature as one of the chief steps leading to the Differential Calculus. Huyghens is buried in St. Peter's, Leyden. Portrait by Netscher.

VARIGNON (*Pierre*), b. 1654, d. 1722.

From Fontenelle's *Éloge* of VARIGNON we learn that he was the son of an architect of Caen, destined for the Church. His strong bent for mathematics, stimulated by the *Geometry* of Descartes, urged him to Paris, where, by the help of his friend, the Abbé Charles de St. Pierre, he established himself; and in 1687, the year of Newton's *Principia*, published his *Projet d'une Nouvelle Mécanique*. This attracted much attention: and Varignon was appointed, in the following year, Professor of Mathematics at the Collège Mazarin, a post which he held till his death, December 22, 1722, though for the last seventeen years his health had been such as to make original work impossible. It was not till three years afterwards that his larger work, an expansion of the *Projet*, was published, under the title of *Nouvelle Mécanique*. A manuscript note of De Morgan in

my copy of this work sums up its value characteristically : "This work was born long after its own death, and three years after its author's. The *Projet*, in 1687, enabled all the world to act upon it : so that, when the finished work was published, it had long been superseded. The great feature of this work, as of the *Projet*, is the prominence given to the composition of forces. Varignon and Newton were forcing this commodity into the market at the same time and independently."

A short passage from Lagrange's *Mécanique Analytique* may supplement this view. He remarks (Part I. § 1) : "The theory of compounded motions may be found in the writings of Descartes, Roberval, Mersenne, Wallis, etc. ; but till the year 1687, the date of the *Principia* of Newton and the *Projet de la Nouvelle Mécanique* of Varignon, no one had thought of substituting the consideration of forces for that of the motions they were capable of producing, and of determining the force resultant from two given forces, in the same way that they determined the motion compounded of two given rectilinear and uniform motions." Lagrange goes on to explain how the principle of the composition of forces led at once to the conditions of equilibrium between three forces acting on a point, which had only been obtained from the laws of equilibrium of the lever by a long series of deductions. He dwells with admiration, however, on an important theorem contained in the larger work of Varignon (§ I. lemma xvi.), which establishes a direct connection between these two principles. [J. H. B.]

See works referred to. E. Mach : *The Science of Mechanics. Phil. Pos.* i. 16.

JAMES BERNOULLI, b. 1654, d. 1705.

The Bernoulli family, a striking example of hereditary talent, which in the course of a century produced eight distinguished mathematicians, was of Flemish origin. Driven from Antwerp in 1583 by the religious wars, they sought refuge first in Frankfort, finally in Basle. The son of a pastor, born 27th December 1654, James BERNOULLI was intended for his father's profession, but was allowed to follow his strong bent for mathematics. His first work was his *Method of Teaching Mathematics to the Blind*, suggested by his experience with a blind girl of Geneva. Travel in France, England, and Holland brought him into contact with many leading geometers. Returning to Basle in 1682, he became Professor of Mathematics there. Two of his treatises are of this date : one on *Cometary Motion* ; a second on the *Gravity of the Ether*, in which he tried to show that all apparent instances of attractive force were in reality to be explained by pressure. As atmospheric pressure accounted for such facts as respiration or suction, so gravitation, cohesion, magnetic and electric force, were to be explained by the pressure of the ether. Four years afterwards the publication of the

Principia was to adjourn such speculations indefinitely. Meantime, in 1684 appeared at Leipsic the Differential Calculus of Leibniz, followed very shortly by the Integral Calculus. James Bernoulli at once saw its extraordinary value as an instrument of research : and did more for its development than Leibniz himself, who was absorbed in many other subjects. The next half generation was a fruitful period of discovery. Curves that the geometry of Archimedes, of Descartes, or even of Wallis, had found intractable yielded up their secrets : new curves were discovered, and the vision dawned on men of following all the intricate forces of Nature by mathematical process. It must be remembered that during this period Newton's Fluxional Calculus, though long discovered, remained still undivulged. Among James Bernoulli's achievements may be mentioned the solution of the problem of the isochronous curve, that down which a body falls with uniform velocity ; the discovery of the catenary curve, *i.e.* that which is described by a chain suspended from its two extremities, and which Bernoulli saw to be also that of the section of a sail filled with wind ; the elastic curve, the loxodromic and logarithmic spirals, etc. Greater than these special problems was that proposed and ultimately solved by him of Isoperimetry : Given curved lines of different species but identical length, which will enclose the maximum area, which will form the largest surface of revolution, the solid with the largest content, etc. Into the painful dispute with his younger brother John, in which the discussion of this problem involved him, it is not needful to enter. The importance of the subject lay, as James Bernoulli explains in his papers treating of it, not merely in the special results obtained, but far more in the fact that it brought out the full scope of the Transcendental Calculus ; since differentials of the third order were needful for its solution. It was the starting-point of the discovery with which Lagrange began his great career, the Calculus of Variations.

James Bernoulli died in Basle, 16th August 1705, after an illness apparently due to mental strain. Comte remarks (*Astron. Populaire*, p. 404) that in the absence of Newton, it is to him probably that the discovery of the Mechanic of the Solar System would have fallen (see also *Synthèse Subjective*, p. 565). [J. H. B.]

His papers on Isoperimetry were published in the Leipsic Acta of 1700 and 1701. J. E. Montucla : *Hist. des Mathématiques*, pt. i. liv. 1. E. Mach : *The Science of Mechanics* (Eng. trans.). James Bernoulli is buried at Basle in the church formerly belonging to the Franciscans. Portrait by his brother, Nich. Bernoulli, the elder, Basle.

JOHN BERNOULLI, b. 1667, d. 1748.

Together with his elder brother James, John BERNOULLI did much for the establishment of the Infinitesimal Calculus. He travelled in France in 1690, and made the acquaintance of de

l'Hôpital and others. About the same time he began to quit medicine for mathematics. On the death of his brother James, in 1705, he succeeded to the Basle professorship of Mathematics, in which he spent the rest of his life. Comte mentions him twice: once as the inventor of the method of "integration by parts," by which means useful transformations can often be made. The other reference is to the fertile problem proposed by him in 1695, called the "Brakistochron," demanding the curve on which a material point will fall from one given point to another in the least possible time. Leibniz, Newton, James Bernoulli, and de l'Hôpital sent solutions. An unfortunate controversy arose between the two brothers, both so competent that no fit umpire could be obtained. (See the article on JAMES BERNOULLI.). John Bernoulli was the first to express in explicit form the principle of Virtual Velocities. John Bernoulli was father of Daniel, of whom more will be said. [C. G. H.]

E. Mach: *The Science of Mechanics* (Eng. trans.). *Phil. Pos.* i. 7, 8. Portrait by Huber.

BRADLEY (*James*), b. 1693, d. 1762.

The final and decisive proof of the earth's movement was given by this great astronomer, whose career strikingly illustrates the inductive, as distinct from the geometrical, aspect of his science. He was born at Sherbourne, in Gloucestershire, of an old north-country family, and was educated at Northleach Grammar School, and subsequently at Balliol College, Oxford. But his real master was his maternal uncle, James Pound, rector of Wanstead, Essex, an excellent astronomical observer, to whom he betook himself immediately after taking his degree. In the observatory at Wanstead the best work of his life was done.

In the century that had passed between the close of Kepler's career and the beginning of BRADLEY'S, much progress, almost a revolution, had been made in the art of astronomical observation. By the use of the telescope, not for penetrating distances, but for accurately defining direction, by the invention of the clock, the vernier, and the micrometer, and by the more perfect graduation of instruments, it had become as possible for Bradley to distinguish an angle of one second as it had been for Tycho to distinguish one of half a minute, or for Hipparchus a tenth of a degree. Bradley was perhaps the first to use clockwork so that his instrument moved with diurnal rotation. With these appliances he made, between 1716 and 1721, numerous observations for the determination of solar parallax, and others defining the period in which the irregularities in the eclipses of Jupiter's satellites recurred.

In 1721 he became Savilian Professor of Geometry, though still residing at Wanstead. In 1725 he was engaged with Molyneux at Kew in examining Hooke's statement that the star γ Draconis had

a certain parallax—*i.e.* that, viewed from opposite points of the earth's orbit, its apparent position varied, giving thus hopes of determining its distance. The two observers found no parallax; but they noted day by day deviations from the calculated position of the star, describing round that position a nearly circular path in the course of the year, the diameter of this circle being 39″. It was sought to explain these facts by some peculiar conformation of the earth's atmosphere; but the explanation failed.

Bradley renewed the inquiry at Wanstead with better instruments. He found similar deviations in all fixed stars, the path of error being always completed in the year, though varying in form with the declination of the star. Noticing one day, when boating, that the wind, as indicated by the vane at the mast-head, seemed to shift when the tack was changed, the thought occurred to him that the apparent annual shifting of the direction in which the stars were seen was due to the compounding of the earth's motion with the motion of light (ROEMER). While light travels down the tube of the telescope, the instrument itself has been carried forward one ten-thousandth of its own length. After a long series of laborious observations the conjecture was verified. The earth's movement was now finally demonstrated: for no explanation of this *aberration* of light is possible on any other hypothesis.

Continuing his Wanstead observations, Bradley perceived that the annual amount of precession of the equinoxes, regarded as 50″, was not strictly uniform, varying by excess and by defect. The cause of these variations was suspected by him as far back as 1732; but he continued patiently to record them for twenty years, and found them to be recurrent in a period corresponding to that of the moon's nodes, 18½ years nearly. Newton had shown that precession was explained by the action of the sun and moon on the equatorial bulging of the earth. Bradley suggested that the variations in the plane of the moon's orbit to that of the plane of the equator might account for his new law, known as *Nutation*; and this the great geometers who followed him have shown to be the fact.

Bradley was made Astronomer-Royal in 1742. He died 13th July 1762, at Chalford in Gloucestershire, and was buried in Minchinhampton. [J. H. B.]

Dict. of Nat. Biog. Comte; *Astron. Populaire*, pt. iii. ch. vii. Bradley's two great discoveries are recorded in *Philos. Trans.* 1729, p. 637, and 1748, p. 1. His astronomical observations, published in 1798-1815, fill 1000 folio pages. Portrait by Hudson, Bodleian, Oxf. (copy N.P.G.); by Richardson, R.S.

ROEMER (*Olaus*), b. 1644, d. 1702.

ROEMER was educated in the University of Copenhagen, where he studied astronomy. In 1671 Picard, the French astronomer, engaged him to visit Paris, where he taught the Dauphin mathematics. Besides taking part in a survey of France, he worked at the Paris

Royal Observatory, and took many observations of Jupiter. Astronomy was sufficiently advanced for fairly accurate prediction of the immersions and emersions of Jupiter's moons. So, when Jupiter and the Earth were on the *same* side of the Sun, Roemer predicted the immersions and emersions of Jupiter's moons as they would occur when the Earth and Jupiter were on *opposite* sides of the Sun. In fact, however, he found that those events took place some sixteen minutes *after* the predicted time. And when, the Earth and Jupiter being on *opposite* sides of the Sun, Roemer predicted the immersions and emersions of Jupiter's moons as they would occur when Jupiter and the Earth were on the *same* side of the Sun, he found that those immersions and emersions occurred some sixteen minutes *before* the predicted time. After repeated confirmations for the elimination of error, Roemer concluded, in 1675, that the difference must arise from light taking sixteen minutes to traverse the diameter of the Earth's orbit. Roemer's celestial observation has been confirmed by Foucault's terrestrial experiment. One objection brought against Roemer was that similar errors had not been detected in predictions of the movements of other heavenly bodies; such errors have, however, been since detected. After ten years' residence in France, Roemer returned to Copenhagen, where he was made Professor of Astronomy. He was afterwards made Chancellor of the Exchequer, and eventually Burgomaster of Copenhagen. He made some improvements in the manipulation of telescopes; but his fame rests on his computation of the velocity of light. [C. G. H.]

Delambre: *Hist. de l'Astronomie Moderne.* A. Berry: *A Short Hist. of Astronomy.* Condorcet: *Éloges. Phil. Pos.* ii. 22.

VOLTA (*Alessandro*), b. 1745, d. 1826.

VOLTA was born of noble family at Como, where also he was educated. In his youth he composed poetry in Italian and Latin; but he soon turned his mind to science, and especially to the phenomena of electricity. In 1774 he was made Professor of Natural Philosophy in the University of Pavia, and in the next few years he travelled in England, France, Holland, Germany, and Switzerland. He married in 1794, and had three children; resigned his Professorship in 1804, and died at Como in 1826. He was much patronised by Napoleon.

Before Volta's time electricity as produced by friction had been much studied, especially by Franklin. Volta carried on these researches, and was indeed the first to subject the tension of statical electricity to precise measurement by an ingenious balance, a fact too often forgotten. The discovery which has made him illustrious is, however, his method for producing currents of continuous electricity, by what is known as the Voltaic Pile. What immediately led to this was the initiative of Galvani, which otherwise bade fair

to be fruitless. In 1780 Galvani, whom the names *Galvanic* and *Galvanism* unduly honour, found that a dead frog's leg could be convulsed by touching the lumbar nerve with one metal, the crural muscles with another, and joining the metals. Hence he concluded that the electricity was simply an animal product. But Volta dissipated this hypothesis by showing that the metals, when aloof from animal matter, could generate similar force, the main point being, not the presence of the animal body, but the contact of dissimilar metals under the influence of chemical action. In 1800 Volta constructed his "Pile," consisting of disks of copper, zinc, and cloth moistened with saline or acidulated water. This long upright series of disks is arranged in the order: copper, zinc, cloth, etc., beginning at the bottom with copper and ending at the top with zinc. A current of electricity will pass through the pile from top to bottom, and then upwards along a copper wire connecting the lowest copper disk with the highest zinc disk. Volta fell into the error of supposing that the electric current so produced was due to the contact of dissimilar metals; whereas, both in his own experiment and in Galvani's, chemical action of the fluids and metals involved, greater in the case of one of the two metals than of the other, is the condition determining the current. But Volta's eminent merit is that he followed a truly positive method in a case where metaphysical conceptions predominated; whence he not only saw that Current Electricity belonged to the inorganic world, but also founded Electrical Dynamics by inventing an apparatus for producing electricity, which has caused the science to develop itself and Chemistry with astonishing speed and sureness. [C. G. H.]

Deschanel: *Natural Philosophy*, pt. iii. etc. Volta is buried at Camnago, near Como.

SAUVEUR (*Joseph*), b. 1653, d. 1716.

The founder of Acoustic science, son of a notary in La Flèche, was dumb till his seventh year, and never spoke very plainly. He showed great mechanical aptitude while at the Jesuits' school of his native town, and even before. In 1670 he went to Paris, and one of his uncles gave him an allowance on condition of his studying for the Church. When he abandoned theology his allowance ceased, and he lived by teaching mathematics. He soon taught many pupils of high social rank. Between 1680 and 1690 he began the study of fortification, and was at last appointed examiner of the engineers, and allowed a pension till death. In 1686 he was made Professor of Mathematics at the Royal College of Paris; and worked for the last twenty years of his life in improving the mathematical theory of sound, discovering by theory and experiment the velocity of the vibration of musical strings under various circumstances of magnitude and tension. His ear being very defective, he relied on the words of assistants very largely. His papers on acoustics are

contained in various volumes of the Academy between the years 1700 and 1713. He may be regarded as the true founder of this branch of Physics, pursued afterwards in the 18th century by David Bernoulli, Euler, D'Alembert, and Chladni, and in the 19th by Sophie Germain, and Helmholtz. Sauveur's experiments in this department have proved more fertile than his calculations; and the same perhaps may be said of others. [C. G. H.]

Phil. Pos. ii. 32.

GALILEO, b. 1564, d. 1642.

The founder of Physics was born in Pisa, February 15, three days before Michael Angelo's death, and died in the year of Newton's birth. His father, distinguished in the theory and practice of music, was a poor descendant of the ancient and illustrious Florentine family of Bonajuti, who, in the 14th century, had changed their name for that of Galilei. The boy showed early signs of ardent and versatile genius. He constructed mechanical toys for his schoolfellows; he threw himself eagerly into Greek and Latin study; he inherited his father's skill in music; and he showed remarkable aptitude for painting, to which two generations earlier his life would probably have been devoted. Ariosto and Dante remained his favourite poets throughout life. In his eighteenth year he was sent to the University of Pisa, where he attended the lectures of the great Cesalpino, one of Harvey's forerunners. Visitors to the cathedral are shown the bronze lamp which he saw swinging, and of which he noticed that the swings, whether through a large or small arc, took place in equal, or nearly equal, times. Of mathematics he knew nothing as yet, for his father, wishing to concentrate him on medicine, had dissuaded him from learning them. Yet he turned his discovery to account by constructing a pendulum of proper length for measuring the speed and regularity of the pulse: the first instrument perhaps ever made for precise observation of phenomena in a living organism. Quite at the end of his life, his thoughts turned again to the pendulum as the best mode of measuring time with the exactness required in astronomy.

Galileo was not slow to find where his proper work lay. Viviani, his disciple and biographer, tells us that underneath all his studies of nature, life, and art, he felt, even before he knew, that there lay the scientific foundation of the whole—the laws of Geometry. From Ricci, a friend of his father, who taught mathematics at the Grand-Ducal court, he received, at the age of 22, his first lesson in Euclid. From Euclid he soon passed to Archimedes, and fastened upon that part of his work in which the greatest of geometers stood alone, the marvellous researches on the lever, and on floating bodies. We note here, as in the case of Descartes and Pappus (see PAPPUS), one of the bridges between ancient and modern science. Galileo's first

work was the construction of a balance for solving in a simpler way Archimedes' problem of the crown of gold alloyed with silver. This drew the attention of the Marquis Guid' Ubaldo of Pesaro, a name well known in mathematical history, who urged him to write, in 1588, his treatise on *The Centre of Gravity in Solids*, and who procured the next year his election as Mathematical Professor in Pisa. Here began his first series of researches on motion, controlled by experiments on falling bodies carried on from the Leaning Tower. Here, too, was his first crusade against the decrepit philosophy of his time, in which Aristotle's conjectures had been petrified into a creed, while of the open mind and patient observation of the great master not a trace was left.

After two years Pisa was too hot to hold him. But in 1592, through the persistent help of Guid' Ubaldo, he became Professor of Mathematics at Padua ; and there, under the shelter of the Venetian Republic, he spent the following eighteen years, and did most of his constructive work. His lecture-hall had an audience of two thousand, including strangers from every part of Europe. His latest discoveries, and his suggestions for original researches, were poured out to all comers ungrudgingly. The range of subjects was wide. Besides the laws of equilibrium and motion, he dwelt on the importance of measuring all natural forces, great or small, abstruse or familiar, so as to bring them within the range of geometry, and thus adapt them to the service of man. No one before him had sought to measure heat with precision. His own thermometer, though very imperfect, was the starting-point of others. It was his disciple Torricelli who first measured the weight of the atmosphere.

In astronomy it was well known that he took the Copernican side. He held, with Bruno, that the universe was infinite, not finite ; and that the stars and planets were made of the same substance as the world we live in. The use he made of the telescope—invented in Holland in 1608, but greatly improved by himself in the following year—showed facts that made this view far more probable. The Dutch invention was for terrestrial purposes only. Galileo, not neglecting these—for he won the favour of the Venetian Senate by showing the distance at which an enemy's fleet could be descried—turned his own more powerful instrument to the sky. He speedily discovered Jupiter's four moons, the irregular surface of our own satellite, the phases of Venus, certain bodies which he could not clearly define surrounding Saturn, and the solar spots. The first of these has been well described as a miniature Copernican system : all of them showed the solar system to be far more complicated than men thought. His resolution of the Milky Way into separate stars gave another proof that our sun with its planets was but an atom in a boundless universe.

The Venetian Senate at once raised Galileo's salary. But as the Grand Duke offered him equal advantages in Florence, patriotism turned the scale. He left Padua for Florence in 1610, and from

that time till his death he never knew peace. In the war between Science and Theology he was eager for the fight; he had powerful friends, and felt sure of victory. In 1611 he visited Rome, and freely advocated the new conception of the universe. Systematic clerical opposition now began. A letter from Galileo to Castelli, in which he took the dangerous course of trying to harmonise Science and Scripture, was laid before the Inquisition. Early in 1616 the propositions of the sun's fixity and the earth's diurnal motion were formally condemned; the work of Copernicus, published seventy years before, was placed on the Index; and a promise was extorted from Galileo not to defend his theory. He remained silent for seven years. In 1623, when his friend Maffeo Barbarini became Pope Urban VIII., he strove to get those edicts reversed. In this he failed, yet still persisted in writing his celebrated *Dialogues on the Two Systems*. This work with much difficulty he obtained leave to print in 1632, on the condition of inserting reservations dictated, it is thought, by Urban himself, which disfigure the preface and the first section of the work. But the dramatic form gave free play to the irony of which Galileo was a master. Simplicius, the personage who advocates obscurantism, was said, truly or not, to be Urban himself. The book spread swiftly through Europe from south to north. It was resolved that Galileo should be crushed. He was summoned to Rome; and on the 22nd June 1633 he was forced to read and sign a formal abjuration of his belief in the Copernican doctrine. Tortured physically he was not; though had he refused, certain death or imprisonment awaited him; and his principal work was still unprinted. He was allowed to live in retirement near Florence, all gatherings of friends being strictly forbidden. His house was the Villa Martellini, at Arcetri, near the Convent of St. Matthew, where his daughter, Sister Maria Celeste, was a nun. It is sad to know that this daughter, whose touching letters are preserved, and whose loving care had been his mainstay for years, should have died soon after his return from Rome, worn out by anxiety.

But his strenuous activity survived. His greatest book, the *Dialogues on the Two Sciences of Mechanics and Motion*, summing up his work at Pisa and Padua, was completed at this time, and published in 1638 in Holland. He carried on a long correspondence with the Dutch Government as to adopting observations of Jupiter's satellites for determination of longitudes. His last astronomical work was to discover the moon's libration. Then sight failed him. Yet he still worked on, dictating to Viviani and Torricelli important papers, amongst them one on the illumination of the moon by earth light, and attempts to adapt the pendulum to measurement of time. He was still full of schemes for new inquiries when he was struck down by fever. He died on the 8th of January 1642, in his 78th year.

Galileo did not demonstrate the earth's motion. What he did was to found the science of Dynamic, which, in the hands of Newton

nearly a hundred years later, led to that demonstration. The scientific study of motion, contrasted with that of equilibrium, involves the new element of Time. Galileo defined uniform velocity as that in which the spaces traversed were proportional to the times of transit. Kepler had shown that a body acting under a single impulse and unhindered, will move for ever in a straight line. But how was it with a body acted on by a continuous force, as that of a body falling from rest under the influence of gravity ? That the velocity increased as the fall went on was obvious ; but what was the law of the increase ? His discovery of this law, as Comte has said, is the crowning-point of his fame.

Galileo tells us that he put to himself as the simplest hypothesis that equal increments of velocity took place in equal times. As time is infinitely divisible, these increments are infinitely small and numerous, and the problem was to sum them. It was a problem of integration, though so simple as not to need a special calculus. Galileo shows by a simple geometric process that, in motion uniformly accelerated, the time occupied is equal to that spent by a body moving uniformly with velocity equal to half that attained by the accelerated body at the end of the period ; that the spaces traversed are as the squares of the time ; and as a corollary from this, that the spaces in each successive interval are to one another as the series of the odd numbers. In a further section of the work Galileo shows, with extreme fulness, that a body, like a projectile, acted on simultaneously by an impulse and by the continuous force of gravity, will move in a parabola. The Second Law of Motion—that which Comte calls the law of coexistence of movements—was clearly known to him.

Original as his discoveries in Dynamic were, those in Static were hardly less important ; and Lagrange, in the first section of the *Mécanique Analytique*, fully appreciated their importance. His work on the *Utility of Mechanical Science and the Instruments it employs*, written, it is thought, in 1593, though published much later, contains on its first page the distinct germ of the principle of Virtual Velocities, as solving the apparent paradox, that the small weight at the long arm of the lever could balance a large one. The velocity with which the two arms *tended* to move was inversely proportionate to the weights ; and the case was therefore as though a man having to carry to a certain distance a load beyond his strength, took many journeys and conveyed a portion of it in each. The element of time comes in.

Galileo tested his law of falling bodies partly by direct observation, partly by comparing the spaces traversed in given times upon inclined planes of the same altitude. The velocity, identical at the end of the fall, admitted, in the earlier parts, of more easy measurement than when the fall was vertical. It may be said generally that the note of his whole work is mathematical research controlling, and controlled by, observation of Nature. For abstract mathe-

matics he had little taste. "Philosophy," he says in his *Saggiatore*, "is written in the great book of the Universe which lies always open. But we must first understand the language and the character in which it is written. That language is mathematics. Its characters are triangles, circles, and other geometric figures, without which we cannot, humanly speaking, understand the words, and wander aimlessly through a dark labyrinth." [J. H. B.]

A. Berry: *A Short Hist. of Astronomy.* E. Mach: *The Science of Mechanics.* H. Höffding: *A Hist. of Modern Philosophy. Private Life of Galileo,* 1870. *Galileo's Dialogues concerning two new Sciences,* ed. by A. Favaro (Eng. trans.). *Phil. Pos.* i. 1, 15; ii. 29. *Pos. Pol.* iii. 479. Galileo is buried in S. Croce, Florence. Portrait by Sustermans, F.; by Passignano, Bodleian, Oxf. and N.G. (replica or copy).

VIETA (*François*), b. 1540, d. 1603.

François Viette, commonly known as VIETA, was born in 1540 at Fontenai-le-Comte, near La Rochelle. The recorded events of his life are chiefly that he held the post of Master of Requests under Henry III. and Henry IV.; and that he took an active but not very successful part in the reformation of the Calendar under the Papacy of Gregory XIII. His spare time was concentrated with extreme zeal on Algebra, in the history of which he fills a most important place. He died in Paris in 1603.

Algebra, as known to the Greeks, and embodied in the work of Diophantus (*q.v.*), had been cultivated and developed by the Arabs in the great school of Bagdad. The treatise of Mahommed ben Musa, composed under the Khalifate of Al Mamoun (813-33 A.D.), in which the solution of quadratic equations, in geometrical forms analogous to those of Euclid's second book, is clearly given, was brought in the 12th century into Italy by Leonard Fibonacci. Little progress was made till the 16th century, when Cardan, Tartaglia, and Ferrari devoted themselves with nearly complete success to the solution of equations of the third degree. But the work of these men was essentially special. Vieta, taking up algebra where they left it, enlarged its scope, improved, or rather, it would be true to say, constructed its notation, and thus formed what Comte calls the Calculus of Relations into a distinct branch of science.

His works, of which the principal are the *Isagoge in Artem Analyticum*, the *Logistice Speciosa*, and the *Zetetica*, were separately printed and distributed privately in his own lifetime, and were published by Schooten in 1646 in a collected form. The volume forms a comprehensive treatise on algebra. The symbols employed are not entirely identical with those now in use, and are much more cumbrous. His signs for addition, subtraction, and division are identical with ours, except that, in expressing the difference between two quantities of which one was unknown, he used the symbol that is now employed, since Recorde, to express equality. For multiplication he used the Latin prepositions *in* or *sub*. The powers of a quantity were expressed by terms of geometric origin. The first

power being called *latus* (a side, or line), the second was called quadratum, the third cubus; for higher powers the expressions quadrato-quadratum, quadrato-cubus, cubo-cubus, and so on, were used. But the simplifications used since his time do not touch the fact that Vieta was the first by whom algebra was definitely conceived as the Calculus of Relations: as a science in which all quantities, known or unknown, were expressed by symbols, and in which symbols of quantity were definitely distinguished from symbols of operation. By the side of this achievement the special discoveries of Vieta, of which a long list may be made, are of secondary importance.

Amongst these, however, should be recorded, as De Morgan in his admirable memoir on Vieta observes, "Vieta's application of his new algebra to the extension of trigonometry, in which he first discovered the important relation of multiple angles, and his extension of the ancient rules for the division and extraction of the square and cube roots to the *exegetic* process for the solution of all equations." De Morgan goes on to remark, "If a Persian or Hindu, instructed in the modern European algebra, were to ask, 'Who of all individual men made the step which most distinctly marks the separation of the science which you now return to us from that which we delivered to you by the hands of Mahommed ben Musa?' the answer must be—Vieta." [J. H. B.]

For Vieta's works see above. De Morgan: Article, VIETA, *Penny Cyclopædia*. For all the names in this week, see W. W. Rouse Ball: *Hist. of Mathematics*.

HARRIOTT (*Thomas*), b. 1560, d. 1621.

An important link in mathematical history between Vieta and Descartes is supplied by HARRIOTT. He was born at Oxford, in St. Mary's Parish, in 1560, and entered St. Mary's Hall. After taking his degree he became mathematical tutor to Sir Walter Raleigh, and through his influence went with Sir R. Grenville, in 1585, to survey the new territory of Virginia. His report, published in the third volume of *Hakluyt's Voyages* (1600), contains important suggestions as to the development of the industry and trade of that colony.

On his return Raleigh introduced him to the Earl of Northumberland, a munificent patron of science, who gave him a pension of £300, with residence at Sion House; and who during his own imprisonment in the Tower (1605-1621) frequently received Harriott and other mathematical friends. At Sion House Harriott pursued his scientific studies till his death, in 1621, of cancer. He was buried in St. Christopher's churchyard, London (now the garden of the Bank of England).

Harriott was an energetic and sedulous astronomical observer. He kept up correspondence with Kepler; he eagerly availed himself

of the invention of the telescope: and on 17th October 1610 he began a series of observations on "the new-found planets about Jupiter." It has sometimes been said that he discovered them before Galileo: but for this there is no evidence. A large collection of his astronomical observations is preserved in the British Museum, together with memoirs on other scientific subjects. These are still unpublished.

The work on which his place in this Calendar depends, *Artis Analyticæ Praxis*, was not published till after his death, in 1631, six years before the publication of Descartes' *Geometry*. In view of the exaggerated claims put forward on Harriott's behalf by Wallis and others, it is well to refer to the very striking preface to this work, in which Harriott states his aim to be simply that of reproducing the work of Vieta with an improved notation. Improved notation in algebra is a very important thing, and Harriott's improvements were great. The powers of quantities, instead of being described, as by Vieta, as *latus*, *quadratum*, *cubus*, *quadrato-quadratum*, and so on, were now represented very nearly as in modern algebra, by the juxtaposition of letters, *aa*, *xxx*, etc. The further step of using a number to represent the exponent, as a^2, x^3, was introduced shortly afterwards by Descartes. In Harriott's work an algebraic equation assumes its modern form, the terms being collected on the left side and equated with zero. Recorde had already proposed, many years before, the symbol of equality, and Harriott adopted it, adding the symbols for excess or defect. To him also is due the discovery that an equation has as many roots as there are units in its highest power. [J. H. B.]

See Harriott's work referred to above; also, *Dict. of Nat. Biog.*

WALLIS (*John*), b. 1616, d. 1703.

John WALLIS was born at Ashford, in Kent, November 13, 1616. He displayed no special talent as a child, and had but just begun the study of arithmetic when he entered Emanuel College, Cambridge, in 1632. There he studied anatomy, and is said to have been one of the first to accept Harvey's discovery of the circulation of the blood. He took orders; in the civil war he sided with the Parliament; in 1643 the sequestered living of St. Gabriel, Fenchurch Street, was given to him: and in the following year he was appointed one of the secretaries of the Assembly of Divines at Westminster. It was not till his 31st year that he applied himself seriously to mathematics. In 1649 he was made Savilian Professor of Geometry at Oxford; and shortly afterwards he began the series of researches which mark him as one of the pioneers of transcendental analysis. Though a Parliamentarian, he favoured the Restoration; and therefore when this took place he retained his professorship. He was one of the founders of the Royal Society. He died in his 87th year, October 28, 1703.

His most important work is the *Arithmetica Infinitorum*, published in 1655. In this he starts from the method of Cavalieri, who in 1635 had presented the method of Exhaustions, used by Archimedes and other ancient geometers, in a new form. Cavalieri regarded lines as made up of innumerable points, or rather of very short lines; a surface as composed of innumerable lines, or rather of extremely narrow parallelograms; a solid of innumerable planes, or rather of solids of extremely small depth. That these elementary parts were more easily conceived of than the wholes to which they belonged was certain; but the difficulty lay in their summation—or, to use the language of Leibniz and his colleagues, in their integration. The progress effected by Wallis consisted in the application to this problem of the algebraic calculus. By summation of the series first of the natural numbers, then of their squares, their cubes, and their higher powers successively, he performed the integration now represented as $\int x^m\, d$; the remarkable point being that he extended the use of the symbol m to fractional and to negative quantities. He arrived in the same manner at many other results which are really applications of the integral calculus in everything but form: as *e.g.*, the rectification of the parabola, which he showed to be dependent on the quadration of the hyperbola. Newton's discovery of the Binomial Theorem is directly consequent on Wallis's investigations of the quadrature of curves.

It is particularly to be noted that, in the opening sentences of this great work, as well as in many other places, Wallis boldly affirms the expediency of the inductive method in mathematical research; a forecast of Comte's remarkable saying that Geometry was a science of observation; a truth which it would have been well that Kant had recognised. "Wallis," says De Morgan, "was eminently distinguished by his power of comparison and generalisation; and he had a large portion of the faith in the results of algebra which has led to its complete modern establishment, in which hardly any of that sort of faith is wanted. He was thus enabled to avail himself of the ideas which the ordinary processes of arithmetic and algebra had offered for centuries without results." [J. H. B.]

De Morgan: Article on WALLIS in *Penny Cyclopædia*. Wallis is buried in St. Mary's, Oxford. Portrait by Kneller, Bodleian, Oxf.; by Soest, R.S.

FERMAT (*Pierre de*), b. 1601, d. 1665.

Pierre de FERMAT was born at Toulouse, where he studied law and became a counsellor of the Parliament. He seldom left his province, where he had the reputation of an upright magistrate, and of a learned and capable lawyer.

The mathematical problems with which he occupied himself were principally the theory of numbers, and the treatment and generalisation of geometrical questions by the algebraic calculus, to which

Descartes' *Geometry* had given so powerful a stimulus. In particular, he studied (1) the method of determining the maxima and minima of curves—that is, the points at which the ordinates undergo a change from increase to decrease, or the reverse ; and (2) the problem of drawing tangents to the curve at any point. The two problems are closely allied, and their solution brought Fermat very near the discovery of the Differential Calculus, of which indeed Lagrange regards him as the first inventor. This, however, is an exaggeration : to suggest the principle of that calculus was one thing, to construct it was quite another, which needed a stronger man than Fermat.

His principle was as follows :—When a function of a variable (fx), represented by the ordinate of a curve, has reached a *maximum* or a *minimum*, its increment in a position infinitely near is zero. Making, therefore, an infinitely small addition, e, to the abscissa, we obtain a new function of x which we may equate with the original function. The terms in which e is a factor may now be suppressed, since e is an infinitely small quantity. We thus obtain a special value of x, corresponding to the point at which fx is a *maximum* or a *minimum*. On this Montucla observes, with justice : " This extremely ingenious rule is similar, *barring the notation*, to that taught by the Differential Calculus. The superiority of the latter lies in its speedier method, and in the complete avoidance of the irrational quantities from which Fermat's equations could not always be disentangled " (Montucla, part iv. livr. 2, p. 111). This conception of Fermat, and also his analytical treatment of tangents, are clearly explained in Comte's *Géométrie Analytique*—a work specially intended to show the full range of Cartesian geometry up to the point where it was superseded by Leibniz and Newton.

Fermat edited and commented on Diophantus, adding important researches of his own on the theory of numbers. A new and complete edition of his works is now in course of publication.

[J. H. B.]

Phil. Pos. i. p. 169. Fermat is buried in the Augustinian Church at Toulouse.

CLAIRAUT (*Alexis Claude*), b. 1713, d. 1765.

CLAIRAUT was born in Paris, May 7, 1713. His father was a mathematical teacher. The son's precocity was proved by his publication of an original treatise on *Curves of Double Curvature* at the age of 18 ; it had been completed, however, two years earlier, and was begun in his 14th year. In 1731 he was admitted into the Academy of Sciences. He entered into intimate relations with Maupertuis, whom he accompanied to Lapland in 1735, for the purpose of measuring a degree of the meridian. Clairaut had already begun a series of researches on the figure of the earth, resulting in the publication in 1743 of his celebrated treatise on this subject. In this he showed that, regarding the Earth as an elliptic spheroid,

the variation of gravity upon the surface was independent of the law of density of the interior strata, and might be deduced from a knowledge of the external form. Of no less importance were his various memoirs on *The Theory of the Moon* (1743-1752), raising the important problem of three gravitating bodies, and supplying defects in Newton's mode of applying his law to lunar motions. He was the first who applied Newton's theory to the perturbation of cometary motions by attractions of the planets; foretelling in 1757, by very elaborate applications of mathematical analysis, the action of Jupiter on Halley's Comet. These and other researches of a similar kind justify the title which Comte gives to him (*Synthèse Subj.* pp. 567 and 653) of being the principal constructor of Celestial Mechanics.

From the nature of the case, it is impossible that any account of Clairaut's work that can be given here should offer the slightest approach to adequacy. Those who imagine that Newton found out all that was worth knowing about the solar system, or, again, that researches like Clairaut's are made by looking through a telescope or using a surveyor's instrument, can only be undeceived by going themselves through some of the preliminary stages of the long and arduous course of deductive reasoning which they involved.

But the briefest notice of Clairaut should include a mention of the two masterpieces of lucid exposition in which this great geometer has made the elementary principles of algebra and geometry accessible to the humblest intelligence. It is noteworthy that in each case he begins by introducing the student in the most vivid and impressive way to the central problem with which the science deals—in algebra, to the formation of equations; in geometry, to the indirect measurement of space. Both subjects are presented in the way in which we may presume them to have occurred to the earliest investigators, and are thus endued with the charm that accompanies the most abstract scientific teaching when shown to have its root in the History of Humanity. [J. H. B.]

A. Berry: *A Short Hist. of Astronomy*. E. Mach: *The Science of Mechanics*. Clairaut's *Algebra* and *Geometry* are in the Positivist Library. The latter has been translated by Dr. Kaines (1881). Drawing of Clairaut by Cochin (engr.).

POINSOT (*Louis*), b. 1777, d. 1859.

POINSOT was born in Paris, 3rd January 1777. He entered the Polytechnic School in 1794. In 1804 he was made Professor of Mathematics at the Lycée Bonaparte; in 1809 he became Professor of Applied Mathematics at the Polytechnic School; and in 1816, examiner at the same institution. In 1813 he succeeded Lagrange as secretary to the Academy. He was one of those who recognised Comte's genius, and formed part of the small but illustrious audience before whom the *Course of Positive Philosophy* was delivered in 1826.

Poinsot's principal contribution to Rational Mechanics is his theory of Couples. Starting from the fact that two forces in the same plane, equal in magnitude, opposite in direction, and not applied in the same line, cannot be equilibrated by any single third force, he called such pairs of forces *Couples* ; the moment or leverage of the couple being the product of one of the forces into the length of the perpendicular arm joining it to the other. Poinsot shows in his *Elements of Static* (1) how the couple can be transferred to any parallel plane, or to any position in the same plane, without change of result ; (2) how couples in different planes can be reduced to a single resultant couple. The extreme simplicity and clearness thus introduced into the study of the equilibrium of a rigid system are obvious to every reader of his *Elements of Static*. Applied to the study of Rotation, Comte observes that the theory of Couples is capable of rendering it as clear and as elementary as that of Motion of Translation (*Phil. Pos.* i. 16). [J. H. B.]

E. Mach : *The Science of Mechanics*. Articles on ROTATION and on THEORY OF COUPLES in *Penny Cyclop.* The *Static* of Poinsot, with all his *Memoirs on Mechanic*, are in the Positivist Library. Poinsot is buried in Père La Chaise, Paris.

EULER (*Leonhard*), b. 1707, d. 1783.

The most fertile of great geometers, as Comte, in his *Synthèse Subjective*, habitually calls him, was born at Basle, 15th April 1707. His father was a Swiss pastor, himself a mathematician, and a pupil of James Bernoulli. Leonard EULER was taught by John Bernoulli, and was a friend of his son Daniel. On the invitation of Catharine I. of Russia, he was invited to St. Petersburg, where, in 1727, he succeeded Daniel Bernoulli as Professor of Mathematics. Here he devoted himself to the development and improvement of the Integral Calculus ; here, too, he published (1736) his *Treatise on Mechanics*, of which Lagrange, in his *Mécanique Analytique* (vol. i. p. 227), speaks as the first great work in which analysis was applied to the science of Motion. He observes, however, that this work is founded, like those that preceded it, on the consideration of tangential and normal forces ; but that a simpler way of expressing the effect of accelerating forces on the movement of bodies, in which the motion of a body and the forces producing it are referred to fixed directions in space, was introduced six years afterwards in Maclaurin's *Treatise on Fluxions*, and has since been generally adopted.

In 1741 he went, at the invitation of Frederick, to Berlin, where he remained for twenty-five years, prosecuting inquiries into every branch of the higher mathematics, and also supplying the great ruler with much valuable information connected with the mint, with navigable canals, and other practical subjects. Here, at the invitation of the Princess of Anhalt-Dessau, he wrote, under the title of *Letters to a German Princess*, a popular exposition of mechanical

and physical science. In 1766, the Empress Catharine II. persuaded him to return to St. Petersburg, where he passed the remainder of his life. His great work, *Institutions of the Integral Calculus*, was published there in 1768, in three quarto volumes. Euler died peacefully, 17th September 1783.

To appreciate the quality of Euler's work would require mathematical developments for which there is no space in this work. He extended the theory of series : he created the calculus of circular functions : he added much to indeterminate analysis, and to the theory of numbers. Of the differential and the integral calculus, on both of which he wrote elaborate treatises, he left no branch unimproved, and he did much to develop their application to physical researches, especially to the dynamics of fluids and to acoustics. His theory of rotation is considered by Comte his masterpiece, on account of its admirable correlation of the abstract with the concrete (*Synthèse Subjective*, p. 681). The copiousness of his work is extraordinary. Of forty-six volumes of scientific papers published by the Academy of St. Petersburg between 1741 and 1783, Euler wrote at least half ; and he left a hundred papers unpublished. Of the justice of the title which Comte applies to him there can be little question. [J. H. B.]

A. Berry : *A Short Hist. of Astronomy*. Condorcet : *Éloges*. Euler is buried in the Smolenskoe Cemetery, Petrograd. Portrait by Handman, Basle.

MONGE (*Gaspard*), b. 1746, d. 1818.

Gaspard MONGE was born at Beaune in 1746. He was the son of an innkeeper in prosperous circumstances. He was educated at the College of Lyons, where we hear of him at the age of 16 as already occupied in teaching. He became a mathematical teacher at the College of Engineers at Mézières ; and here it was that he developed his method of constructing geometrically plans of fortification. In 1780 he received an appointment in Paris as teacher of hydrodynamics. His geometrical method was first published from the shorthand notes taken of his lectures in the Normal School (1794-5) ; the work was enlarged in subsequent editions. He took an active part in organising the naval and military administration of the revolutionary wars, and in the establishment of the Normal and Polytechnic Schools. He accompanied Bonaparte to Egypt, and the scientific results of that expedition are largely due to him. At the Restoration he was expelled from the Institute. He died July 28, 1818.

His descriptive geometry, a branch of mathematics almost wholly due to him, has been explained as " a systematic presentation of the methods by which a ground-plan and an elevation are made to give the form and dimensions of a building." From the projections of a point, a line, or series of lines, on two planes at right angles to each

other, the point, line, or series of lines can be constructed. Such is the elementary problem of Monge's *Géométrie Descriptive*—a masterpiece of lucid exposition. "Descriptive Geometry," he says, "has two objects: first, it supplies the means of representing on a sheet of paper in two dimensions bodies of three dimensions: provided always that these bodies can be rigorously defined. Secondly, it gives the power of recognising the forms of bodies by the precise descriptions given of them, and of deducing all the truths resulting from their form and their respective position." The preface to the work, bearing date 7th year of the Republic, is a patriotic exposition of the need of technical education as an agency of national independence.

Comte speaks of the work of Monge (*Phil. Pos.* i. 2, 11) as the most striking illustration of the utility of an intermediate class intervening between students of abstract science and men engaged in practical industry. The engineering class has developed largely in recent times: corresponding classes are needed in other departments of thought.

Monge was a mathematician of the first rank. His remarkable attempt to apply principles of classification to geometric surfaces is fully appreciated in Comte's *Géométrie Analytique* (pp. 485, *et seq*).

[J. H. B.]

Monge is buried in Père La Chaise, Paris. Head by Rude, L.

D'ALEMBERT (*Jean le Rond*), b. 1717, d. 1783.

D'ALEMBERT, the illegitimate son of an artillery officer, was found by the police lying in a public market near the church of St. Jean-le-Rond, in Paris, and taken to the wife of a poor glazier, who brought him up, giving him the name of the church near which he was found. To his mother, Madame de Tencin, who subsequently claimed him, he replied, "You are my stepmother only; my real mother is the glazier's wife." With this poor woman he lived forty years, a small allowance being made him by his father. He was educated at the Collège des Quatre Nations by Jansenist professors, who discovered, what they afterwards vainly attempted to check, his mathematical genius; and who hoped to divert him, like Pascal, into mystical speculations. After directing his attention for a short time to the professions of law and medicine, he bent his whole energies on mathematical research. At the age of 24 he was admitted (1741) into the Académie des Sciences; and from this time began a brilliant career of discovery which lasted for twenty-five years, varied only by his co-operation with Diderot in the celebrated *Encyclopédie*, for which he wrote the Introductory Discourse and many literary articles. After the appearance of D'Alembert's article on Geneva, the publication was stopped a second time by the Government (see DIDEROT), and D'Alembert retired from the management.

His treatise on Dynamic, founded on the celebrated principle which bears his name, appeared in 1741. It was a generalisation of a question which had much occupied Huyghens and the brothers Bernoulli. The passage from the mechanics of a particle to the mechanics of a mass, or system of particles, each animated with its own tendency to move, and each acting on, and reacted on by, the rest, had been studied by these men in the case of the compound pendulum. Newton had shown that in the case of a sphere, its action on a neighbouring mass might be regarded as though it were concentrated in its centre of gravity. D'Alembert handled the problem in its entirety, and made an epoch in science. His principle is thus stated by Lagrange : " If the bodies, or particles, of a rigid system receive impressed motions which, owing to their mutual action, they are obliged to change, it is clear that these motions may be regarded as compounded of those which the bodies will actually follow, and of other motions which are destroyed. These last must be such that bodies animated by these solely would remain in equilibrium " (*Mécanique Analytique*, vol. i. p. 239). Comte, in commenting upon this principle, remarks that its germ is contained in Newton's principle of the equality between action and reaction (*Phil. Pos.* i. 17).

D'Alembert received in 1752 a pension of 1200 francs from Frederick the Great, with whom he maintained a long correspondence, and who was anxious that he should settle in Berlin. He visited that city in 1763, but declined to stay. He refused also a proposal made by Catharine of Russia to educate her son, the salary offered being £4000 per annum. The latter years of his life were embittered by his unfortunate attachment to Mademoiselle de l'Espinasse, whose love for him was neither so strong nor so enduring as his own. He died on October 29, 1783. [J. H. B.]

A. Berry : *A Short Hist. of Astronomy*. E. Mach : *The Science of Mechanics*. Condorcet : *Éloges*. L. Lévy-Bruhl : *Hist. of Modern Philosophy in France*. D'Alembert was interred in the burying-ground of St. Germain L'Auxerrois, Paris. Portrait by Latour, I. and St. Quentin ; by Cath. Lusurier, C.

DANIEL BERNOULLI, b. 1700, d. 1782.

DANIEL BERNOULLI, the second son of John Bernoulli, was born at Gröningen, February 9, 1700. He studied medicine for some years, but mathematics was from the first his favourite pursuit. At the age of 24 he was offered, but he refused, the Presidency of the Academy of Sciences at Genoa. In 1725 he went, invited by the Empress Catharine, to St. Petersburg, where he lived eight years. In 1733 he returned to Basle, where he filled the chair both of Medicine and of Natural Philosophy. He lived at Basle, profoundly respected by his fellow-citizens, till his death, March 17, 1782.

His father and his uncle, James Bernoulli, had devoted themselves to the perfecting of the Infinitesimal Calculus as an instrument of

research. Daniel, the contemporary of Euler, Clairaut, and D'Alembert, was mainly occupied with its application to Physics. His *Hydrodynamique*, published 1738, was the first systematic application of the higher analysis to the motions of fluids, based upon his development of the principle of the conservation of *vis viva* in a system. In 1740 he shared with Euler and Maclaurin the prize offered by the Académie des Sciences for the best memoir on *Tides*, in which the equilibrium of particles of water between the gravitation to the Earth's centre, and the disturbing forces of the Sun and Moon is analytically expressed. Finally, his theory of oscillation must be mentioned. A system under the influence of any disturbing cause tends to oscillate round its position of stability. The oscillations due to different causes co-exist as though each kind took place separately. The application of this principle to the wave-theory in different branches of physics has been of the greatest importance.

[J. H. B.]

E. Mach: *The Science of Mechanics*. Condorcet: *Éloges*. *Phil. Pos.* i. 18; ii. 25. Portrait by Grooth, Basle.

LAGRANGE (*Joseph Louis de*), b. 1736, d. 1813.

LAGRANGE was born at Turin, 25th January 1736, where his father held the office of treasurer of war. His earliest studies were literary rather than scientific. From the classics he passed to the study of ancient geometry; but he was speedily attracted by the marvellous results issuing every year from the Infinitesimal Calculus. At the age of 19 he became Professor of Mathematics at the Military College of Turin; most of his pupils being older than himself. Corresponding, in 1755, with Euler at Berlin, as to problems of isoperimetry, he communicated to him the germs of his Calculus of Variations, the import of which Euler at once perceived. The employment of this instrument of research in various problems, especially in the higher branches of physical astronomy, occupied the greater part of his career. One of his most important results, commonly called the *principle of least action*, derived from the application of his calculus to Huyghens' principle of conservation of *vis viva*, is this: In any system of bodies acting mutually in any manner whatever, the sum of the products of the masses by the integrals of the velocities multiplied by the elements of the spaces traversed is always either a maximum or a minimum (*Méc. Analyt.*, vol. i. p. 246).

When Euler left Berlin for St. Petersburg, Frederick the Great, after a fruitless invitation to D'Alembert, induced Lagrange to accept the post of Professor of Physical and Mathematical Science in that city. He remained there for twenty years. At Frederick's death, in 1787, he accepted the invitation of the French government to settle in Paris, where the remainder of his life was spent. He died on the 10th April 1813, and was buried in the Panthéon.

His *Mécanique Analytique* is a reduction of all the problems of Rational Mechanics to the principle of Virtual Velocities, the germ of which is due to Galileo, and which was first explicitly stated by John Bernoulli in 1717. Lagrange's statement of it is as follows (*Méc. Analyt.* vol. i. p. 22): "If any system of any number of bodies or points, acted on each by any number of forces, is in equilibrium, and if to this system be given any small motion by which each point passes through an infinitely small space expressing its virtual velocity, the sum of the forces, each multiplied by the space which the point where it is applied traverses in the direction of this force, is always equal to zero: the small spaces traversed in the direction of the forces being counted positive, those in the reverse direction, negative."

His *Théorie des Fonctions Analytiques* was an attempt to bring the Infinitesimal Calculus into conformity with ordinary algebra. He shows that when the variable of a function receives an increment, and the function is then developed in a series according to the ascending powers of this increment, the coefficient of the second term of the series corresponds to what, in the Differential Calculus, is expressed as $\frac{dy}{dx}$, that of the third to $\frac{d^2y}{dx^2}$ and so on. He called these coefficients *derived functions*. The primitive function being fx, the derived functions were noted as $f'x$, $f''x$, and so on. This method of regarding the Infinitesimal Calculus has the advantage of abolishing the distinction between transcendental and ordinary analysis. Nevertheless, as an instrument of research, it has not proved equal to the calculus discovered by Leibniz. It is to this last that all the great advances made by the French and Swiss mathematicians of the 18th century were due: and in his own researches Lagrange used the method and notation of Leibniz in preference to his own.

Lagrange is denoted in the *Synthèse Subjective* as the most philosophic of pure geometers. It is specially characteristic of his genius that he invariably treats the leading conceptions of his subject from the historical standpoint. (See *Mécanique Analytique*, vol. i. 9-22, and 221-245.) [J. H. B.]

A. Berry: *A Short Hist. of Astronomy*. E. Mach: *The Science of Mechanics*. *Synthèse Subjective*, pp. 420, 438, and 625-6. *Phil. Pos.* i. 6, 8, and 16. *Pos. Pol.* i. 440; iv. 350. The *Théorie des Fonctions Analytiques* is in the scientific section of the Positivist Library. Bust, I.

FOURIER (*Jean Baptiste Joseph*), b. 1768, d. 1830.

FOURIER was born at Auxerre, 21st March 1768. His father was a tailor. He was educated at the Military School under the Benedictines, and between 1789 and 1794 taught mathematics there. He took an active part in the Revolution, and was more than once in peril of his life. From 1794 to 1798 he was a teacher at the Polytechnic School. He went with the French expedition to Egypt,

where, in addition to his scientific work, he held important administrative posts. He did much to inspire the Champollions with their zeal for Egyptian research. On his return he became Prefect for the Department of the Isère till 1815. At the Restoration he came to Paris, and succeeded Delambre as secretary of the Academy, and Laplace as President of the Council of the Polytechnic School. He died in Paris, May 1830.

His *Théorie Analytique de la Chaleur* was published in 1822. It is an investigation of the mathematical laws of the propagation of heat through solids. The analytical problems involved were, as Comte observes in his remarkable chapter on the subject, fundamentally the same as those that arise in researches on the motion of fluids. In one case as in the other, functions of four independent variables are employed, the equations involving partial differences of the second order, and being otherwise of very similar composition. Comte predicted that when the doctrine of Fourier was better known and appreciated much use of it would be made in analytical researches in other branches of Physics. These remarks were made in 1835; they have been verified by subsequent experience. The concluding passage of the chapter in question, pointing out the tardy justice done to this great thinker, is amongst the most eloquent in the *Philosophie Positive* (ii. 31). Fourier was one of the two distinguished men to whom that work was dedicated. He had followed Comte's first course of lectures on the subject in 1826.

Fourier wrote another important work, *Analyse des Equations Indeterminées*, which was published after his death.

[J. H. B.]

J. Fourier: *The Analytical Theory of Heat* (Eng. trans. by A. Freeman, 1878). Fourier is buried in Père La Chaise, Paris.

NEWTON (*Sir Isaac*), b. 1642, d. 1727.

Kepler established the Geometry of the solar system; Newton its Mechanics. He was born December 25th, 1642, at Woolsthorpe, near Grantham in Lincolnshire, where his family had held a small landed property for many generations. As a boy, at the Grantham Grammar School, he was slow in book-learning, and much absorbed in mechanical contrivances. At 17 he entered Trinity College, Cambridge. Here he devoted himself eagerly to mathematical study, meditating principally on the *Geometry* of Descartes, published in 1637, and on the *Arithmetica Infinitorum* of Wallis, published 1655. In 1667 he was elected Fellow of his college, and two years afterwards succeeded Barrow as Professor of Mathematics. From this chair his lectures on Optics were given. In 1672 he was elected a Fellow of the Royal Society. In 1686 his great treatise on Natural Philosophy, the *Principia*, was completed, and the next year published. In 1687 he was one of the delegates chosen to defend his

University against the encroachments of James II.; and in 1689 he represented it in Parliament. In 1695 he was made Warden, and in 1699 Master, of the Mint. In 1703 he became President of the Royal Society, and was re-elected every year till his death, which took place on the 28th of February 1727. He was buried in Westminster Abbey.

The splendour of Newton's discoveries has led many writers, especially in England, to isolate his work from what had been done before him, and was being done in his own time by others. But the History of Science is a fundamental part of the History of Humanity, and the life of no man, however great, should be treated thus. And further, to Newton, as to others, the canon must be applied that publication is the proper test of priority.

Kepler's three laws, that the planets moving round the sun described equal areas in equal times, that their orbits were elliptical, the sun being in one of the foci, and that the squares of their times of revolution were as the cubes of their mean distances, were discovered a generation before Newton's birth. But they remained unreduced to any law of force. Kepler had indeed shown that the force must proceed from the sun, and had put forward the mistaken conjecture that it varied inversely as the distance. As already stated, Kepler was strongly convinced of the identity between terrestrial weight and planetary attraction, and made an estimate, on this erroneous basis, of the mutual fall of the earth and moon, supposing no other force intervened. Ismael Boulliaud, in his *Astronomia Philolaica*, published 1645, suggested that gravitation acted not inversely as the distance, but inversely as the square of the distance. But these views rested on vague analogies between gravitation and the radiation of light from a focus; and till they could be mathematically tested they received, and deserved, but slight attention.

The law of falling bodies had been accurately given by Galileo. But no attempt had been made to connect it with the laws of planetary motion. In 1665, Newton, being then at Woolsthorpe, thought of investigating the space through which the moon in a given time was deflected from the tangent to her path—in other words, fell towards the earth. He found that in one minute the moon fell thirteen feet. Taking the best estimate available to him of the earth's magnitude, from which the moon's parallax, and thence her distance, were to be estimated, he found that, on the supposition that gravitation acted inversely as the square of the distance, the fall of the moon in one minute should be not thirteen, but fifteen feet. He therefore quietly put the hypothesis aside; a striking example of scientific forbearance, which it would be well if some of the constructors of evolutionary hypotheses could imitate. Seven years afterwards Picard's more exact measurement of the earth's magnitude reached him from Paris. Newton at once resumed his calculations, causing them, for greater certainty, to be completed

by a disinterested observer. The correcter statement of facts was found to tally with his hypothesis of gravitation.

It is often supposed that the problem of explaining the planetary motions was now solved. In reality, the difficult part of the work —that which tests Newton's intellectual greatness—had still to be done. The problem before him was to show how Kepler's Third Law, that the squares of the periods of planets varied as the cubes of their mean distances from the sun, followed mathematically from the supposition of an attractive force, acting inversely as the square of the distance, situate in the focus of an ellipse. Further, this force had to be regarded not as acting upon a particle, but on a planet; *i.e.* a system of particles. No vague hypothesis could be useful here: no application of such mathematics as were then known could suffice.

In 1673 appeared the great work of Huyghens on the Pendulum and on Centrifugal Force. This contributed in two ways to the solution. Huyghens' laws of centrifugal force gave the measure of the force which retained the planets in their orbits, supposing the orbits circular. And further, in his discussion of the Pendulum, Huyghens had attacked the problem of a system of particles rigidly connected, and each animated with its own tendencies to motion. Newton acknowledged his debt to Huyghens; but in passing from circular to elliptic motion, and above all for his demonstration that the attractive force exercised by the molecules of a sphere might be regarded as condensed in its centre, ordinary geometry, even after its algebraic expansion by Descartes and his mathematical successors, was insufficient.

Foremost among these successors stood Newton. And it was at this time—that is to say about 1666—that he constructed the Transcendental Calculus, by the aid of which his great treatise was written; though, for reasons which seem to us now quite inadequate, he presented his demonstrations in the language of ordinary geometry. On the claims for priority to the invention of this calculus a bitter controversy arose between the friends of Leibniz and of Newton. It is admitted now that Newton made his discovery prior to and independently of Leibniz. But no description of Newton's Fluxions was published till 1693. The letters of Leibniz show that he had invented his Differential and Integral Calculus in 1675; and a full account of it was published in the *Acta Eruditorum* at Leipsic, 1684. It must be further admitted that the differentials and integrals of Leibniz proved more fertile in the subsequent development of mathematics than the fluxions and fluents of Newton.

But it fell to the lot of Newton to combine the discovery of the calculus with what was by far the most important of its applications. And hence it is that the *Principia*, notwithstanding the archaic form into which he thought fit to transpose his discoveries, will by many be looked upon as the greatest, by all as one of the two or three great masterpieces, of scientific intellect. In unity of purpose,

though not in native power, it surpasses the work of Archimedes; in the importance of its application, though not in philosophic breadth, the *Mécanique* of Lagrange. There was only one solar system, as Lagrange himself observed, for man's intellect to master.

Newton's mathematical and experimental researches on light and colour, which began with his installation as Professor of Mathematics, were first communicated to the Royal Society in 1672, and were finally published in a complete form in 1704. The experimental part of his work, to which the analysis of white light into component colours of different refrangibility—a subject opened by Descartes—is but the prelude, remains of indestructible value. His theory of light, as the emission of small particles with great velocity in direct lines, has been superseded by the theory of propagated vibrations of the ether, originating with Descartes and Huyghens, and afterwards more fully elaborated by Euler and Young. Comte (*Phil. Pos.* ii. 33) has thrown doubt on the exclusive value of either hypothesis as an instrument of discovery. It is at least possible that the second, now all but universally accepted, may undergo modification.

Finally, it must not be forgotten that to Newton we owe the establishment of the Third Law of Motion, the equality of action and reaction: a law stated by him in that large and comprehensive way which enables us to include among the reactions the conversion of sensible into insensible motion; so that it illumines and corrects much modern speculation upon work and energy. [J. H. B.]

Newton's *Life* has been written, though with some partiality, by Sir D. Brewster. A. Berry: *A Short Hist. of Astronomy*. E. Mach: *The Science of Mechanics*. H. Hoffding: *A Hist. of Modern Philosophy*. See also (as for the other names in the week) W. W. Rouse Ball: *Hist. of Mathematics*. The filiation of Newton's discoveries is fully treated in *Phil. Pos.* ii. 24. See also *Astron. Populaire*, pt. iv. ch. ii.; and Laffitte: *Philosophie Première*, leçon 13. Portrait by Kneller; by Vanderbank, N.P.G.; by Jervas, R.S.; by Thornhill, Trin. Coll., Camb.

BERGMAN (*Torbern*), b. 1735, d. 1784.

Intended for the profession of law or divinity, BERGMAN became a student at Upsala in 1752. There, coming under the influence of the great Linnæus, then at the height of his power, Bergman was drawn into the study of the natural sciences. Biology claimed his attention at first, and he was soon held in high esteem by Linnæus, not only as a student but as a discoverer. He graduated in 1758, and became a teacher of natural philosophy in the university, and then a sort of associate Professor of Mathematics and Physics. In 1767 he was appointed to the Professorship of Chemistry, which position he held during the remainder of his life. Bergman did much to raise the position of chemistry as a science, and thus to maintain throughout Europe the great reputation which the fame of Linnæus had acquired for the Upsala University.

The position of Bergman in the history of chemistry is not due so much to his actual discoveries of fact, important as many of

these are, but rather to his strictly scientific manner of dealing with facts already known. He recognised the importance to science of limiting the use of hypothesis, which he saw to be a means of research only, and never an end. His scientific memoirs number more than a hundred, and deal with questions all along the line of chemical advance. He was the first to perform chemical analysis systematically, and laid the foundations of that art. He added much to the chemistry of the important subject of iron and steel, he was the first to draw attention to the science of crystallography, and he may be said to have founded mineralogy. But these and the other important results embodied in his memoirs must give way to his great work on *Elective Attractions*, *i.e.* Affinities, which was originally published in 1775, and in a revised form was included in the collected edition of his works which appeared in 1783. Dr. Beddoes translated it into English in 1785. Geoffroy, long before, had pointed out the significance to chemistry of a study of affinity, but the subject had been forgotten; still, in some sense, Bergman's work is but an amplification of that of Geoffroy. The radical fact of chemistry, that chemical affinity is definite and elective, and can be expressed by numbers, was clearly seen and strongly maintained by Bergman. Upon this basis he arranged some sixty tables of substances, in which each in turn heads a vertical list, the others following in the order of their affinity for the one at the top. By means of these tables he was able in a manner to predict chemical reactions. This luminous doctrine was received with much favour by chemists, until, with the growth of facts, the science became too complex for prediction in the simple manner which he had adopted. Indeed Berthollet was able to maintain successfully that chemical combination was indefinite, and depended not at all upon original or fixed affinity, but altogether upon other and variable causes. But further discoveries came, and the fixed and elective character of chemical affinity, as foreseen by Bergman, was at last universally admitted; though owing to the immensely increased complexity of the science, it was found impracticable to construct tables of affinity. [A. S.]

H. Kopp: *Geschichte der Chemie*, i. 245-255. Condorcet: *Éloges*. *Phil. Pos.* iii. 35, 36. *Pos. Pol.* i. 441.

SCHEELE (*Carl Wilhelm*), b. 1742, d. 1786.

The whole life of SCHEELE was given to chemical study and research, and such was his skill that, for the number and value of his discoveries, he stands almost unrivalled in the history of chemistry. During his pharmaceutical apprenticeship he acquired a knowledge of chemistry from the works of Neumann and other German writers of the Stahlian period. After this was completed, he became a pharmacist's assistant in various Swedish towns. At Upsala he met Bergman's assistant, Gahn, who, observing his extraordinary knowledge and ability, brought about an interview between him and

Bergman. Then commenced a friendship which lasted throughout their lives, with advantage to both. Scheele soon after left Upsala for Köping, where he combined the duties of a pharmacist with the pursuit of chemical research until his death in 1786, two years after that of Bergman.

Although Scheele, unlike Bergman, was not distinguished as a thinker, he possessed a genius for resolving the most obscure chemical reactions, and his fertility of discovery was quite unparalleled. Independently of Priestley, he discovered oxygen gas, which he called "empyreal air," and he was the first to analyse the atmosphere into its two constituents, "empyreal air" (oxygen) and "foul air" (nitrogen). He first obtained chlorine gas, and among his numerous other discoveries are :—oxalic, tartaric, citric, lactic, and arsenic acids ; and their salts ; baryta and the salts of barium ; uric acid, and the composition of prussic acid and Prussian blue.

[A. S.]

Sir T. E. Thorpe : *Hist. of Chemistry*, vol. i. H. Kopp, *Geschichte der Chemie*, i. 255, 264.

PRIESTLEY (*Joseph*), b. 1733, d. 1804.

The discoverer of oxygen, PRIESTLEY, was born near Leeds, in Yorkshire, in 1733. Thus he was about two years younger than Cavendish, two years older than Bergman, and some nine years older than Scheele, the last two of whom he outlived. Losing his mother early, he was brought up by an aunt, and was educated with a view to the dissenting ministry. The energetic and fearless manner with which he was wont to maintain what he believed to be truth, and his decided taste for controversy, began in his school days. These were the qualities which afterwards made his life so eventful. After leaving school, he officiated at various places as a dissenting minister, where his opinions were nearly always deemed heterodox, and he was generally unpopular. He was also a school teacher, and for a time held a nominal appointment as librarian to Lord Shelburne, with whom he travelled on the Continent. It was at this time that he met Lavoisier and the French chemists, and that he announced to them his discovery of oxygen, a fact which in their hands revolutionised chemistry. Afterwards he again occupied a pulpit, and this time in Birmingham ; but on account of his radical views in politics and religion—for he was a republican and an ardent opponent of the Established Church—and also largely owing to the general alarm which the crisis of the Revolution in Paris had spread throughout Europe, he was subjected to an ignoble persecution. Riots took place in 1791, and his house and library were burned, with all his manuscripts. For personal safety he was obliged to fly in disguise to London. Priestley had propounded metaphysical and theological views with much ability, which were

not well received at the time; but it seems that his great unpopularity was due almost entirely to his political writings. He espoused the cause of the French Revolutionists; and in addition to his democratic treatises on government, he wrote the "Letters" to Mr. Burke, which led to his being denounced by that statesman in the House of Commons. The French republicans added to the growing hatred by making him a citizen of France and a member of the Assembly. The feeling followed him to London, and even to America, where he took up his abode at Northumberland, Pennsylvania, in 1795. At Northumberland he lived in retirement until his death in 1804.

As a metaphysician and theologian Priestley takes a high rank, and he made some advances in electricity and optics; but his place in the Positivist Calendar is due almost entirely to his brilliant discoveries in the chemistry of gases. Cavendish, in his celebrated memoir on *Factitious Airs*, had laid the foundation of Pneumatic Chemistry. The apparatus for this was much improved by Priestley, and, thus aided, he achieved some of the greatest results in the annals of science. He invented the pneumatic trough, which has ever since been employed in the manipulation of gases; and, with the aid of this and his other apparatus, in 1774, he discovered oxygen gas, or, as he called it, "dephlogisticated air." He was endeavouring to prepare air from red oxide of mercury by means of a burning-glass, when he obtained some possessing new and unexpected properties. This new air he thought, for several reasons, to be common air deprived of its "phlogiston," and he called it therefore "dephlogisticated air." It was independently discovered by Scheele, and was named "oxygen" by Lavoisier. Besides oxygen, Priestley discovered "nitrous air" (nitric oxide); "dephlogisticated nitrous air" (nitrous oxide); the solubility of "fixed air" (carbonic acid gas) in water; "alkaline air" (ammonia gas), and its behaviour when the electric discharge is passed through it; "marine acid air" (hydrochloric acid gas); carbonic oxide gas—which, however, he did not distinguish from "inflammable air" (hydrogen); and many others. To the last he was a zealous, and, it must be admitted, able advocate of "phlogiston." He was a brilliant but not a careful worker: he did not use the balance, and his knowledge of chemistry was limited almost entirely to gases. His own interpretation of his results was often materially imperfect, and he was therefore the more easily persuaded in his opinion that the theory of phlogiston explained the facts of chemistry at least as well as the new theory advanced by Lavoisier. [A. S.]

Sir T. E. Thorpe: *Essays in Hist. Chemistry*; *Hist. of Chemistry*, vol. i. Sir M. Foster: *Lectures on the Hist. of Physiology*. Kopp: *Geschichte der Chemie*, i. 236-244. *Autobiography* in collected works, edited by Rutt (1817). *Phil. Pos.* iii. 39. Priestley is buried at Northumberland, Penn. Portrait by Mrs. Sharples, N.P.G.; by Fuseli (mezzo-tint copy), R.S.; by Artaud, Dr. Williams's Lib., London.

DAVY (*Sir Humphry*), b. 1778, d. 1829.

Humphry DAVY was a native of Penzance. He was apprenticed to an apothecary, and during his apprenticeship rapidly acquired skill as a chemist. This soon became known, and when Beddoes established in Bristol an institution for testing the physiological action of the airs which had been recently discovered by Priestley and others, Davy was chosen to undertake their preparation. Beddoes, then a physician in practice, had been Professor of Chemistry at Oxford, and it was by him that the works of Bergman, Scheele, and others, were translated into English. It was in these experiments for Beddoes that Davy discovered the remarkable physiological action, when inhaled, of nitrous oxide or "laughing gas." He published the result of his work in 1800, and the year following became Professor of Chemistry at the Royal Institution in London, then recently founded by Count Rumford. He held this appointment for a number of years, and afterwards resided chiefly on the Continent, where he died at Geneva in 1829. In 1811 he was knighted, and soon after he was made a baronet. He was President of the Royal Society from 1821 until just before his death.

Besides his work upon nitrous oxide gas and the invention of the Safety Lamp which bears his name, he made discoveries of far greater importance to chemical science. Voltaic electricity had become known by the work of Galvani, Volta, Nicholson, and Carlisle; the two last showed that by its means water and salts could be decomposed. Now Davy, in view of these facts, thought that chemical combination might be explained as due to the attraction of oppositely electrified substances. A similar electro-chemical theory was held by Berzelius. Davy believed, therefore, that if the poles of a sufficiently powerful battery were brought to bear upon any chemical compound it might be separated. With this view he experimented upon potash and soda, and the so-called alkaline earths, with the magnificent result of discovering the elementary metals, potassium, sodium, magnesium, calcium, strontium, and barium. To these great discoveries is to be added another equally important. Berthollet maintained that chlorine gas, which had been discovered by Scheele, was a compound of muriatic (hydrochloric) acid and oxygen. Gay-Lussac and Thénard had in vain tried to get oxygen out of it, but it was Davy who first proved conclusively that chlorine is an element, and muriatic acid a compound of chlorine and hydrogen. This discovery was the overthrow of Lavoisier's doctrine that oxygen was the only acid-producer, for here was an acid containing only hydrogen and chlorine. Davy's conclusions were contested by Berzelius, but the discoveries of iodine and hydriodic acid and bromine and hydrobromic acid supported

Davy's view, and the elementary nature of chlorine was finally established. [A. S.]

Sir T. E. Thorpe: *Humphry Davy, Poet and Philosopher*; *Hist. of Chemistry*, vol. i. Kopp: *Geschichte der Chemie*, i. 375-383. *Phil. Pos.* iii. 38. Davy is buried in the Plain-Palais Cemetery, Geneva. Portrait by Lawrence, R.S. Davy's discoveries in electro-chemistry laid the foundation for the still more important discoveries of Faraday.

CAVENDISH (*Henry*), b. 1731, d. 1810.

Henry CAVENDISH was the son of Lord Charles Cavendish, and grandson to the second Duke of Devonshire. He was a man of retiring and eccentric habits, and lived in seclusion in a house near Clapham Common, only occasionally visiting his London residence or coming to town to attend the weekly dinners of the Royal Society or the Sunday evening gatherings at the house of Sir Joseph Banks. Upon the death of his father, Cavendish inherited a large fortune which was subsequently augmented, but his mode of life was not thereby in the least affected. He studied at Cambridge, and excelled in mathematics. He lived to complete his 78th year, and died at Clapham on February 11, 1810.

Cavendish was a skilful experimentalist, and all his work bears the impress of great care, originality, and thoroughness. His scientific contributions, mostly chemical, are contained in eighteen memoirs, all published in the *Philosophical Transactions* of the Royal Society. Each of these is important. He points out in his celebrated paper on *Factitious Airs*, published in 1766, that there are two kinds—"inflammable air" (hydrogen) and "fixed air" (carbonic acid gas). Van Helmont had some knowledge of the former, but Cavendish must be regarded as its true discoverer; "fixed air" was discovered by Black, and its properties were further studied by Cavendish. In this paper Cavendish describes the first attempt to collect gases and to determine their relative weights, and thus began the pneumatic chemistry afterwards so successfully prosecuted by Priestley. Having discovered "inflammable air" (hydrogen), Cavendish next found that when it is burned in common air, or in the "dephlogisticated air" (oxygen) of Priestley, water is formed, thus proving qualitatively the composition of water. This important discovery was recognised about the same time by Watt, the engineer; and, as soon as it became known in France, the investigation was repeated by Lavoisier and Laplace, and the exact proportion of each constituent was determined. Besides these two great discoveries of Cavendish may be mentioned his proof of the constancy of composition of the atmosphere, his explanation of the solution of limestone in natural waters by means of fixed air, and his determination of the composition of nitric acid. [A. S.]

The characteristic of all Cavendish's work was its quantitative character. He was the first to weigh and measure systematically

throughout a whole investigation. In the course of his work on the atmosphere, he found that about one per cent. appeared to differ from ordinary nitrogen in not combining with oxygen when sparked with it. This was entirely overlooked until the discovery of argon by Rayleigh and Ramsay in 1894. It is most likely that Cavendish really isolated argon. Cavendish recognised the differences of specific heat of different substances, and was the first to determine the weight of the earth by the famous Cavendish experiment.

[C. H. D.]

Kopp: *Geschichte der Chemie*, i. 230-236. Sir T. E. Thorpe: *Essays in Historical Chemistry*; *Hist. of Chemistry*, vol. i. Sir M. Foster: *Lectures on the Hist. of Physiology*. *Phil. Pos.* iii. 38; *Pos. Pol.* i. 441. Cavendish is buried in All Saints' Church, Derby. Portrait in group of men of science (1807-8), with Dalton, Davy, Watt, and others, drawing, N.P.G.

GUYTON DE MORVEAU (*Louis Bernard*), b. 1737, d. 1816.

GUYTON DE MORVEAU was educated for law at the University of Dijon, in which his father was a professor. He afterwards studied and practised in Paris. He showed a decided taste for literature, and after his return to Dijon as Avocat-Général in the local parliament, he was led to the study of chemistry, in which he soon excelled. In 1791 he became a member of the Legislative Assembly, and devoted himself to politics until 1797, when he gave himself up wholly to the prosecution of science, as a writer and teacher of chemistry. He was made a Baron of the Empire, and died, having nearly completed his 80th year.

It was not as an experimentalist or as a discoverer that De Morveau chiefly excelled; but as a clear thinker and writer he did much, especially in the *Encyclopédie Méthodique*, to diffuse a correct knowledge of the rapidly advancing science. It was in this work that he became sensible of the importance of a completely new system of nomenclature for chemistry, and thus it was that ultimately he persuaded Lavoisier, and afterwards Berthollet and Fourcroy, to join him in presenting the new system in 1787, which, being at once accepted throughout the world, did so much to render firm and lasting the great work of Lavoisier. [A. S.]

T. Thomson: *Hist. of Chem.* ii. 174-189. H. Kopp: *Geschichte der Chemie*, i. 317-325. *Life and Writings*, by A. B. Granville (1817). *Phil. Pos.* iii. 35; *Pos. Pol.* i. 433, 453. He died in Paris, under sentence of banishment as a regicide.

GEOFFROY (*Etienne François*), b. 1672, d. 1731.

GEOFFROY inherited from his father, an apothecary, a taste for natural science. He studied at Paris and Montpellier, and came to England as physician to the French ambassador. In 1709 he became Professor of Medicine in the Royal College in Paris, and afterwards Dean of the Faculty, in which position he did much by

his personal influence to mitigate the severity of the strife then raging between Parisian physicians and surgeons. He commenced to lecture on chemistry in 1707, and continued to do so throughout his life. He was a member of the Académie des Sciences, and a Fellow of the Royal Society of London.

Geoffroy was the first to construct Tables of Affinity, in which substances are arranged in columns, each having successively less attraction for the one mentioned first. This was undoubtedly a very great advance, and led directly to the important work of Bergman. [A. S.]

T. Thomson: *Hist. of Chem.* ii. 242-244. H. Kopp: *Geschichte der Chemie*, i. 213-216. *Pos. Pol.* i. 441.

BERTHOLLET (*Claude Louis*), b. 1748, d. 1822.

BERTHOLLET, after graduating at Turin, became physician to the Duke of Orleans, in which capacity he was first known as a chemical discoverer. In 1781 he was admitted to the Académie des Sciences, and in 1785 became a convert to the new chemistry of Lavoisier. He held a number of State appointments of a scientific character, and when France was besieged by the European powers he indicated how the saltpetre necessary for the production of gunpowder, which had always been supplied mainly from without, could be obtained at home from the soil and by artificial methods. Thus at a critical moment he started the saltpetre industry of France. Together with Monge, he did a similar service with regard to steel. In 1796 he gained the friendship of Napoleon, whom he accompanied to Egypt, and who was by Berthollet's arrangement surrounded in that expedition by so many men of science. He was afterwards made a peer of France.

Berthollet, who was one of the most acute thinkers in the history of chemistry, was engaged in two celebrated controversies. He was led by a study of chlorine to regard that gas as a compound of oxygen and muriatic acid, and called it oxidised muriatic acid. This led to similar notions respecting chlorine compounds, all of which were changed when Davy showed the elementary nature of this substance. It is to be observed, however, that, while showing that Berthollet was wrong as to the constitution of chlorine, Davy at the same time, by his analysis of muriatic acid, proved that acids need not contain oxygen, and thus established a contention which Berthollet had always held against Lavoisier. Again, in his great work on *Chemical Statics*, Berthollet took up the radical question of chemical affinity, which had been overlooked by Lavoisier, and maintained against Bergman that chemical affinity was not fixed and elective, but that the composition of a compound varied with the proportion of the reacting masses. He proved that the course of a chemical reaction varied with the masses of the reacting

substances, and with the insolubility or volatility of the products, and formulated certain laws. In the course of a discussion which lasted for eight years, Proust was able to prove the law of definite proportions, which led to a return to the views of Bergman, although it was seen to be impracticable to construct tables of affinity. Nevertheless, although Berthollet was in error as to the constancy of composition of chemical compounds, his law of the dependence of the course of a reaction on the masses of the reacting substances, neglected at the time, became, in the hands of later chemists, the foundation of modern physical chemistry. Two other achievements of Berthollet must be mentioned. Following out an experiment of Priestley, he determined the exact composition of ammonia gas; and, though Scheele had noted the bleaching action of chlorine, it was Berthollet who directed the English bleachers to the fact, and thus indirectly founded the immense bleaching industry of this country. [A. S. and C. H. D.]

Sir T. E. Thorpe: *Essays in Historical Chemistry*; *Hist. of Chemistry*, vol. i. H. Kopp: *Geschichte der Chemie*, i. 329-338. *Phil. Pos.* iii. 35. *Pos. Pol.* i. 441, etc; iii. 499. *Early Essays*, p. 226. Berthollet's *La Statique Chimique* is in the Positivist Library. He is buried in Père La Chaise, Paris.

BERZELIUS (*Jöns Jakob*), b. 1779, d. 1848.

Twenty years after the death of Bergman, BERZELIUS graduated at Upsala in medicine. His attention had already been given to chemistry, and about this time he published some chemical researches which won for him the Chair of Medicine and Pharmacy, and eight years later the Chair of Chemistry, in the Medical College at Stockholm. There he established the laboratory which became so famous, and in which he continued to work during the remainder of his life. Honours flowed in to him from all countries, and in his own he was made a Baron.

Berzelius came to chemistry about the same time as Davy, whom he outlived. The work of Lavoisier was then established. Skilled in the analytical methods of Bergman and Klaproth, and with a full knowledge of the Lavoisierian chemistry and the work of Wenzel and Richter, Berzelius for some fifty years occupied a leading position among chemists: for he it was who, receiving from time to time the discoveries of Davy, Dalton, Gay-Lussac, and others, and applying them in so masterly a manner, built the great structure of modern inorganic chemistry, and led to the organic chemistry of Liebig and Dumas. His influence, too, lived again in such pupils as Mitscherlich, of Berlin, who discovered the law of isomorphism; L. Gmelin, of Heidelberg, author of the celebrated treatise on chemistry; Rose, of Berlin, the analytical chemist; and Wöhler, of Göttingen, who made the first organic synthesis. Berzelius carried the art of analytical chemistry to a very high degree of perfection, and, making innumerable accurate analyses, he added

many new substances to those previously known. He believed, with Davy, that chemical affinity was due to the electrical conditions of the combining elements ; and this led him to propound his electro-chemical theory, according to which compounds have a dualistic structure, the two components being respectively electro-positive and electro-negative. Whilst the true laws of electro-chemistry were only established later, as a result of the labours of Faraday, the work of Berzelius served a very useful purpose in stimulating investigation. His greatest merit is to have applied his unequalled experimental skill to the determination of combining weights. He adopted and applied the great laws which, held together by the atomic theory of Dalton, came to him from year to year. In his controversy with Berthollet, Proust had shown that when an element combines with another in more than one proportion, the other proportions are not a gradual increase upon the first, but that the increase takes place by sudden increments. This fact, which lies at the root of the science of chemistry and distinguishes it from physics, was worked out by Dalton, and constitutes his "law of multiple proportions." It was this which led Dalton in (1802-8) to seek an explanation in the hypothesis of atoms, each having a definite weight. Then in 1808 came Gay-Lussac's similar laws relating to combination by gaseous volume, and in 1811, Avogadro's hypothesis. In 1819 the law of the relation of specific heat to combining weights was announced by Dulong and Petit, and finally in the same year Mitscherlich discovered the law of isomorphism. The full meaning of these discoveries did not appear till later, still it redounds not a little to the credit of Berzelius that he should have successfully applied so much of them to his numerous determinations of what in the language of Dalton's hypothesis became atomic weights. Nor can we forget the important part which the great Swedish chemist took in the controversies which accompanied the rise of modern organic chemistry in the hands of Liebig, Wöhler, and Dumas. [A. S. and C. H. D.]

Sir T. E. Thorpe : *Hist. of Chemistry*, vol. i. H. Kopp : *Geschichte der Chemie*, i. 390-404. *Phil. Pos.* iii. 36, 37.

RITTER (*Johann Wilhelm*), b. 1776, d. 1810.

RITTER was intended for a mechanical occupation ; but, attracted by the discoveries of Galvani, he devoted himself to a study of galvanism, and in face of great practical difficulties attained to a high rank among electricians. He lived at first near Jena, and afterwards at Munich, where he was a Professor in the Academy.

He published several works on electrical subjects, and made some important observations respecting the constitution of salts ; but his greatest discovery related to the actinic action of sunlight. Wollaston made the same observation independently just afterwards.

That sunlight has the property of blackening salts of silver had already been noticed by Scheele. Ritter found that the solar spectrum possesses chemical activity towards and extending beyond the violet end, forming an invisible actinic spectrum. This was the counterpart of Herschel's discovery of heating rays extending beyond the red end. It led in the hands of Wollaston, Wedgwood, Daguerre, and others, to the modern art of photography, and more recently to an important branch of spectrum analysis. [A. S.]

L. W. Gilbert's *Annalen*, vii. 527; xii. 409. T. Young: *Phil. Trans.* 1804, 15. *Biographie Universelle. Pos. Pol.* i. 434.

LAVOISIER (*Antoine Laurent*), b. 1743, d. 1794.

LAVOISIER was born of affluent parents, and received a good education. At the age of 21 he won a prize offered by the French Government for improvements in street lighting. Four years afterwards he became a member of the Académie des Sciences. The discoveries of Black and Cavendish led him to choose chemistry from among the sciences which had hitherto divided his attention, and his life was afterwards devoted to the prosecution of that science. He, however, took an interest in politics, and held financial positions under the Government, and it was on this account that he became a sacrifice to the Revolution, being beheaded, in the midst of his work, with his genius at its brightest, on May 8th, 1794, when only 51 years of age.

Chemistry, as Lavoisier found it, was encumbered by the great hypothesis of phlogiston. It was by overthrowing this, and putting in its place a new explanation of combustion, that he organised modern chemistry. Let us see how this hypothesis of phlogiston came about.

The awakening in favour of inductive science, which gave rise to the physical discoveries of Galileo and the philosophy of Bacon, led, in the seventeenth century, to the first attempts to raise chemistry to the rank of a science. Before this time, for a thousand years, the alchemists had sought in vain for a method of converting the baser metals into gold and silver. But this search, commenced by the Arabians, and introduced by them into Europe, and which produced such men as Geber, Raymond Lully, Roger Bacon, and Basil Valentine, gave to the world indirectly an immense number of facts, the organisation of which afterwards made chemistry. Then there came a transition period, in which chemistry was identified with medicine, such as it was under Paracelsus and the celebrated Van Helmont, who, at the beginning of the 17th century, roughly anticipated much of the pneumatic chemistry of Black, Cavendish, and Priestley. But it was not until 1661, when Boyle published his *Sceptical Chemist*, that the science began. In this remarkable work he subjects to a rigid criticism the Aristotelian principles of earth,

fire, air, and water, and the alchemical principles of salt, sulphur, and mercury, and shows that as ultimate chemical elements they are entirely inadequate. He, at the same time, indicates indirectly what a chemical element should be. This put the science on a firm, independent basis, distinct from art of any kind and from biology. It led afterwards to its final separation from physics. About this time the German physician and chemist Becher put forward a theory which was afterwards applied and maintained under the name of phlogiston by his great fellow-countryman Stahl. According to Becher and Stahl, when, for example, iron is converted into rust it loses something—phlogiston. If, by means of some substance, such as charcoal, rich in phlogiston, the phlogiston be again added to the rust, it becomes phlogisticated rust, or metallic iron. A metal was a compound of its earth or calyx (oxide) with phlogiston, and calcination or combustion (oxidation) was the evolution of phlogiston. This hypothesis served the purpose of linking the facts of chemistry together, and it was largely of its ruins, when it had fallen, that the genius of Lavoisier founded modern chemistry.

Lavoisier was a skilful experimentalist, an untiring worker, and, above all, a scientific thinker of the highest order. Now, he was much impressed by the fact which Boyle had observed, that during the calcination of tin there was an increase in weight. He verified this in a long series of accurately conducted experiments, in which he made use largely of the balance. These showed him in all cases that during calcination or combustion there was an increase in weight, and a corresponding decrease in the superincumbent air. This fact was, of course, fatal to the phlogistic hypothesis. The difficulties to be got over were, however, still many, and they were ably handled by the defenders of the prevailing hypothesis. But the discovery of oxygen by Priestley, the analysis of atmospheric air by Scheele, and the determination of the composition of water by Cavendish, Watt, and himself, enabled Lavoisier to explain calcination and combustion as simple oxidation, and successfully to attack the hypothesis of phlogiston. Then it was that Berthollet (in 1785) became a convert to the new doctrine, and was followed by Fourcroy and Guyton de Morveau. In Great Britain, Cavendish and Priestley never gave up phlogiston, but Black accepted the view of Lavoisier, and taught it in his lectures. Bergman and Scheele, in Sweden, died too early; but Klaproth and the Berlin Academicians, after having repeated Lavoisier's experiments, gave up the hypothesis of Becher and Stahl. Guyton de Morveau then proclaimed the new nomenclature, and Lavoisierian chemistry was definitely established. Upon this basis, Davy and Berzelius, and, more recently, Liebig and Dumas, have built the structure of modern chemistry.

Lavoisier did much important work of other kinds, detailed in his Treatise on Chemistry and elsewhere. He burnt organic substances in oxygen, and from the quality and quantity of the products

calculated the composition of the substance burned, thus laying the foundation of ultimate organic analysis as worked out by Liebig; and, in conjunction with Laplace, he invented a "calorimeter," by means of which they made the first accurate determinations of specific heat. But his fundamental achievement is to have prepared the way for the scientific study of life, by the establishment of the true theory of combustion as a process of oxidation. The function of respiration, and the production of animal heat, now became for the first time intelligible. [A. S.]

There was a certain element of truth in the phlogistic hypothesis, which did not receive recognition until a much later period. There is something which is lost when charcoal burns or iron rusts in air, namely energy, which escapes in the form of heat, and by substituting energy for phlogiston it is possible to find a meaning in the writings of the supporters of the older hypothesis. Their principal error lay in regarding phlogiston as a material thing, and their lack of attention to the quantitative aspect of chemical reactions led them to those erroneous views which were overthrown by Lavoisier. The work of Lavoisier established the great principle of the conservation of mass, according to which the total mass of a system is not changed by any chemical reactions which may take place within it. The complementary principle of the conservation of energy is of later origin, having been established during the years 1842-47 by the labours of Joule, Mayer, and Helmholtz. The whole fabric of modern physics and chemistry is based on these two principles. [C. H. D.]

Sir T. E. Thorpe: *Essays in Historical Chemistry*: *Hist. of Chemistry*, vol. i. Sir M. Foster: *Lectures on the Hist. of Physiology*. H. Kopp: *Geschichte der Chemie*, i. 299-317. *Œuvres*, Paris, 1864-68. *Phil. Pos.* iii. pp. 131, 169; *Pos. Pol.* i. 441, 453; iii. 506. Lavoisier's *La Chimie* is in the Positivist Library. His tomb or cenotaph is now in Père La Chaise, Paris. Bust by Houdon, L.

HARVEY (*William*), b. 1578, d. 1657.

William HARVEY was born at Folkestone on the 1st of April 1578, of a mercantile family of good repute in the city of London. His mother's epitaph may still be read in the parish church. He was sent to the grammar school at Canterbury, and afterwards, in his 16th year, to Caius College, Cambridge, where he took his degree in 1597. In the following year he went to Padua to study medicine, and remained there four years. The Italian schools of medicine were at that time very far in advance of those of northern Europe. In Bologna, Padua, and Pisa, the study of human anatomy was prosecuted with extraordinary zeal. Much has been said, and rightly, of Harvey's debt to his distinguished teacher, Fabricius of Acquapendente, to whom is due the discovery of valves in the veins, favouring the flow of blood in a special direction. But it

must not be forgotten that a greater than Fabricius was in Padua while Harvey was there. Galileo's lectures on motion and mechanical force were revolutionising thought on all physical questions; and on so keen an intellect as Harvey's we may be sure they were not lost.

In 1604 he became a member, and three years afterwards a fellow, of the College of Physicians, and established himself in London, numbering Bacon among his patients. In 1615 he was appointed lecturer on anatomy and surgery at the College of Physicians. Here his views on the circulation of the blood were first put forward; though they were not published till 1628. He was one of the court physicians under James I. and Charles I. Charles took great interest in his discoveries and pursuits, and allowed him to prosecute his researches on embryology among the deer at Hampton. He followed the King through the civil war till the surrender of Oxford in 1646, having been in the previous year made, for a short space, Warden of Merton College. After this he lived with one or other of his brothers in the neighbourhood of London. In 1651 his great work on *Generation* was published. A statue was erected in his honour by the College of Physicians, five years before his death; and an annual lecture is still given there in his honour. He died on the 3rd June 1657. He is buried at Hempstead, in Essex.

Blind partisanship has striven to minimise Harvey's debt to those who prepared the way for him. But it is disingenuous not to acknowledge that certain very close approximations to his discovery had been made in the latter half of the 16th century. Michael Servetus, in his *Restitutio Christianismi* (1553), had truly described the circulation of the blood from the right side of the heart, through the lungs, to the left side. He knew the change of the colour of the blood from dark to bright red that took place in the lungs; he knew also that in the act of expiration the blood was purified from "fuliginous vapours." Realdus Columbus in 1559, and after him Cesalpino of Arezzo, Galileo's first teacher, by careful study of the valves of the heart, had shown that the course of the pulmonary circulation must be as Servetus had stated. Cesalpino went so far as to conjecture that by the great artery (aorta) and its branches bright blood passed to all parts of the body; and that in the veins the passage was not from the main trunk to branches, but from branches to trunk.

But, in the first place, these views, especially as regarded the systematic, or general, circulation, were conjectural only, and were complicated with erroneous views as to the relations of the heart and liver. Secondly, what is far more important, neither these great anatomists, nor any one else, had any conception of the muscular contraction of the heart as the mechanical force that impelled the blood. They were still under the full dominion of metaphysical fancies as to motion being naturally in circles; and as to the effervescing spirits which caused the heart, in its diastole,

to swell and so attract the blood; whereas, in systole, the heart collapsed, when the body drew from it a supply of nutriment. Harvey showed for the first time that the periods of activity and rest were exactly the reverse of what had been thought; that the energy of each chamber of the heart was exerted in contraction. Combining the researches of his predecessors, and availing himself of the discovery of Fabricius as to the valves of the veins, he showed the precise manner in which the machine worked. It was the first introduction into biology of the laws of mechanical science.

The second of Harvey's works, that on *Generation*, containing, like the first, a mass of original and carefully classified observations on human beings and animals, was less fertile in immediate discovery. But it continued, with alternate strivings of the positive and metaphysical spirit, the researches of Aristotle, and it fills a most important place in the history of Embryology. His striking generalisation, *Omne vivum ex ovo*, though not true absolutely, shows most prescient insight into the process of organic evolution.

Comte, remarking that Harvey's discovery of the Circulation was nearly synchronous with Galileo's Law of Falling Bodies, contrasts the immediate results. Galileo's work led at once to a vast train of physical discovery. No such immediate results followed the discovery of Harvey. The time for a scientific and comprehensive grasp of the phenomena of life had not yet come. [J. H. B.]

R. Willis: *Life of Harvey*, prefixed to his works (Sydenham Society, 1847). Sir D'Arcy Power: *William Harvey*. Harveian Oration, by J. H. Bridges (*Harvey and his Successors*), and by Sir W. Osler. Sir M. Foster: *Lectures on the Hist. of Physiology in the 16th, 17th, and 18th Centuries*. Portrait, N.P.G.; by De Reyn, R.S.; by Jansen, Coll. of Physicians.

BELL (*Sir Charles*), b. 1774, d. 1842.

A native of Edinburgh, BELL, a member of an old Episcopalian family, lived in that city till he was 30 years of age; removed thence to London; and ten years later was elected surgeon to the Middlesex Hospital. We have it in his own handwriting, on Pettigrew's *Medical Portrait Gallery* stating that he was educated at the High School of Edinburgh: "Nonsense! I received no education but from my mother, neither reading, writing, ciphering, nor anything else. My education was the example set me by my brothers. There has been in my day a good deal said about education; but they appear to me to put out of sight example, which is all in all. There was, in all the members of the family, a reliance on self, a true independence, and by imitation I obtained it" (*Bell's Letters* [1870], p. 10). His natural character was one of rare refinement, simplicity, and beauty; he possessed artistic abilities of a high order: he made one of the most important, difficult, and interesting of physiological discoveries; and he was treated by his contemporaries with scanty justice. Very great advances in our knowledge

of the nervous system have taken place since his day, but they may all be said to have had their starting-point in his successful attempt to elucidate that complex mechanism. The problem which had confronted and baffled all previous investigators may be thus briefly stated in terms as old as Galen: Why sensation should remain entire in a limb, when all voluntary power over its muscles is lost? or why muscular power should remain when feeling is gone? We now know that nerves are not, as they were formerly supposed to be, mere homogeneous channels capable of conducting indiscriminately initial impulses from the brain, but that each nerve consists of two sets of fibres, each endowed with distinct and separate properties. One of these sets is termed afferent or sensory, the other efferent or motor—the former alone conveying sensation, the latter alone capable of exciting motion. In the nerve trunk itself these fibres are inextricably interwoven and indistinguishable; but at their origin in the spinal cord they are perfectly distinct, and arise from separate portions of that structure. In this consisted Bell's great discovery. He showed both by reasoning and experiment that the bundles of nerves which arise from the anterior part of the cord are endowed with motor properties only; while those which originate in its posterior portion are alone capable of conveying sensations. He was led to this highly philosophical analysis by a consideration of the cranial nerves, some of which contain only one class of fibres to the exclusion of the other. He also observed that the nerves of special sense arose from different tracts of the brain, and he thence inferred that the two attributes of the body at large—sensation and motion—were dependent on a nervous supply which had its origin in different parts of the spinal axis.

[T. F.-P.]

Bell's researches began with an essay privately printed in 1811, which places his originality beyond doubt. They were completed in 1826, and were united into a treatise in 1830. His papers in the *Philosophical Transactions*, especially that of July 12, 1821, illustrated with the artistic skill of which he was a master, may be read with much profit, as illustrating his use of the comparative method in disentangling the otherwise inextricable complications presented by the nervous system of the higher vertebrates. "I feel a hesitation," he said, in his *Memoir* of 1826, "when I reason upon any other ground than the facts of Anatomy. Experiments are more apt to be misinterpreted." From experiment, however, he did not abstain; though he distinctly admitted ethical restraint upon its use, even at the cost of retarding scientific discovery. "I should be writing," he tells his brother, 1st July 1822, "a third paper on the nerves; but I cannot proceed without making some experiments, which are so unpleasant to make that I defer them. You may think me silly, but I cannot perfectly convince myself that I am

authorised either in nature or religion to do these cruelties." Of the value of his discovery he was clearly and not unduly conscious. "I know," he writes to his brother in November 1821, "that this will hereafter put me beside Harvey." By the side of Harvey, Comte has placed him.

Bell died at Hallow Park, near Worcester, on the 28th April 1842.

[J. H. B.]

He was buried at Hallow. Portrait by Stevens, N.P.G.

BOERHAAVE (*Hermann*), b. 1668, d. 1738.

Hermann BOERHAAVE was born at Voorhout, near Leyden, December 3, 1668. Destined for the clerical profession of his father, he was sent to the University of Leyden, where, after maintaining himself for some time by mathematical teaching, he devoted himself to the study of medicine, in the theory and practice of which he achieved extraordinary distinction. In 1709 he was elected Professor of Botany and Medicine; in 1714, Professor of Practical Medicine; being chosen in the same year Rector of the University. In 1718 he obtained the Professorship of Chemistry; and on this body of knowledge—for science at that time it could not be called—he wrote an important treatise. His principal work is his *Institutes of Medicine*, a systematic attempt to place medical art on a scientific basis. He begins with a comprehensive review of the history of medicine from Hippocrates to his own time. Doing justice to the direct observation of Hippocrates and to the anatomical knowledge of Galen, increased in modern times by Vesalius and others, he points out how completely at sea men were when, from the study of structure, they passed to the study of function, until the great discovery of Harvey came, "to found physic on the new and more certain basis on which it at present rests" (§18). Boerhaave lived in the great period of mathematical discovery, when men were beginning to estimate mechanical forces accurately. Chemistry had not emerged, and therefore Biology still less, from the metaphysical stage to the positive. Of the two fundamental facts—respiration and combustion—no scientific explanation was yet possible. It was, therefore, inevitable that Boerhaave, eagerly availing himself of such positive science as came within his ken, should have stretched it too far in its application to the facts of life. The human body is, he says, an engine, all whose offices depend on the circulation of the blood. The heat of the body is caused and maintained by the friction of particles in this rapid movement.

But the wisdom of Boerhaave is conspicuous in passing from theory to practice. Hold hard to facts, he said: remember that the physician must apply physical discoveries to animal structures with reserve: that what is true of incompressible fluids in rigid tubes does not necessarily hold of viscid animal fluids in flexible

and elastic vessels. While convinced that medicine must rest on science, he knew how imperfect the science of his time was. Most striking in this respect are his remarks (§203) on the importance of understanding the function of respiration, which remained, he said, still unexplained. His theory of Disease was, of course, in no way sounder than that of his contemporaries. Every disease, he maintains (§871), is a distinct physical and created entity or being, so as to be distinguishable, like a plant or animal, from all others. Nevertheless he had a clear vision, though one not to be realised in his lifetime, of the biological science on which medicine should rest. It is significant that somewhat more than half of his great treatise on medicine should relate to the study of normal structure and function. [J. H. B.]

Institutes of Medicine, Eng. trans. (1742), six volumes: see also his *Aphorisms*, translated into every European language. Sir T. E. Thorpe: *Hist. of Chemistry*, vol. i. Sir M. Foster: *Lecture on the Hist. of Physiology*. Boerhaave is buried in St. Peter's, Leyden.

STAHL (*Georg Ernst*), b. 1660, d. 1734.

The founder of the Spiritualist, or (this word being of late perverted) the Animistic school in Medicine, and in Chemistry the author of the Phlogistic hypothesis, STAHL, was born at Anspach, 21st October 1660. He became in 1687 court physician of the Duke of Saxe-Weimar; in 1694 he gained the Professorship of Medicine at the University of Halle; in 1716 he was appointed physician to the King of Prussia. He died in Berlin, May 14, 1734.

The mechanical and physical discoveries of the 17th century led inevitably to a crude and premature application of them to the facts of living organisms. And what could not be explained by Physics could, so thought another school, be accounted for by Chemistry, which towards the close of this century began to assert its claims as a distinct science. Against both these schools Stahl vigorously protested. The first, whom he called iatro-mathematicians, sought to explain vital phenomena by conjectures as to the shape of atoms, the curvature of blood-vessels, and the mechanical force exerted by the heart. The second, the Chimiatric school, accounted for everything by ferments and solutions of salts. Of chemistry Stahl had a good right to speak. He was a master in that science, and put forward, in 1698, the celebrated theory of phlogiston, which held its ground more than half a century.

Yet so convinced was he of the fatal error of Specialism in dealing with man's organisation, that in his *Theoria Medica* (1707) he proposed to banish Chemistry and Anatomy from Medicine. Hippocrates had shown himself a better physician than any of Stahl's contemporaries, without being either a chemist or an anatomist. Stahl's own conception of an Archè or Vital Principle pervading the organism, relaxing this part, bracing that, and thus regulating

the supply of blood or the secretions in the healthy state, or disturbing them when disordered, seems to us nebulous in the extreme ; but it saved the essential principle of unity which underlay the medicine of Hippocrates. When the nervous system should be known in its entirety, that principle was to find a positive basis ; and meanwhile so urgent is the practical need for synthetic views, in Medicine as in Ethic, that a metaphysical synthesis is better than none at all.

[J. H. B.]

Broussais : *Examen des Doctrines Médicales*, vol. ii. ch. 19. Sir T. E. Thorpe : *Hist. of Chemistry*, vol. i. Sir M. Foster : *Lectures on the Hist. of Physiology*.

BARTHEZ (*Paul Joseph*), b. 1734, d. 1806.

Stahl's protest against the premature application of inorganic science to the facts of human nature was continued through the 18th century by BARTHEZ, who was born in the year of Stahl's death, at Montpellier. His father was chief engineer for the province of Languedoc. Barthez graduated in medicine at Montpellier in 1753. After a short residence in Paris, and a period of service as army surgeon, he obtained, in 1759, the Professorship of Medicine at Montpellier, which he held till 1780. His appointment as court physician then took him to Paris, where he remained till the Revolution. Then he lived in retirement, but not idly, in Carcassonne, till hisde ath, 15th October 1806.

His *Nouveaux Éléments de la Science de l'Homme* was first published in 1778. The enlarged second edition of 1806, containing his replies to critics, is far the more valuable, and was reprinted in 1858.

Like Stahl, Barthez defended the unity of the organism by asserting a Vital Principle ; nor is it easy to see how, in the absence of sound and complete knowledge of a central nervous system, the defence could be conducted otherwise. But Barthez, living three-quarters of a century after Stahl, had assimilated the philosophy of Hume, and was acquainted with the chemistry of Lavoisier. Still Lavoisier's theory of combustion, true as we know it to be, failed to satisfy him as an explanation of animal heat. It failed to explain how in an atmosphere 30° below zero (F.), or, again, in an air-bath rising above the boiling-point of water, the temperature of the blood remained the same. Barthez had recourse to his Vital Principle, which regulated molecular change. His abstraction, scorned by physicists for more than half-a-century, was not so far from the truth as was thought. Modern research on the nervous system shows emphatically that after attributing full weight to the slow oxidation (*i.e.* combustion) of food as the principal source of animal heat, there still remains the need for a central nervous system to regulate that heat by stimulating glands and muscles, by contract-

ing or relaxing vessels, or even by direct promotion of local nutritive change. (See, *e.g.*, Ferrier, *Functions of the Brain*, 2nd edition, 1886, p. 86.)

The most interesting and important part of Barthez' treatise is his discussion of organic *Sympathies*. He distinguished these from *Synergies*, the normal co-operation of a collection of organs for a given result. He included in them such facts as those to which Darwin has since called attention under the title, Correlations of growth—*e.g.*, those shown by many animals at puberty ; and also others well known to observers of disease.

Thus Barthez indicates a distinct approach to that true philosophy of science which, while recognising the dependence of the more complex and special phenomena on the more simple and general, yet maintains the special inductions of the more complex science as an independent field of inquiry. Comte's enlarged use of the word *Materialism*, indicating all undue encroachment of the lower and more general sciences upon the higher and more special, is strikingly enforced by this work of Barthez. [J. H. B.]

The *Nouveaux Éléments* are in the Scientific Division of the Positivist Library. In the Synthetic Division is a posthumous work, *Théorie du Beau*, which, however, is rare.

LINNÆUS (*Carl von Linné*), b. 1707, d. 1778.

The following remarks are applicable not merely to LINNÆUS, but to other names in this week, specially connected with Classification.

It was a cardinal doctrine with Comte that each science brought its special contribution to the sum of man's logical resources, which then became available for other purposes. As Astronomy develops the art of direct observations leading to verifiable hypothesis ; as Physical researches stimulate the logic of Experiment : so in Biology the logic of Comparison and Classification is specially developed. Biology may be regarded not merely as a field of Nature interesting for its own sake, but also as an advance in human history, by which man's reasoning powers are strengthened, while at the same time light is thrown upon his nature. From this latter standpoint the efforts of the men who strove to classify the organic world first by arranging like species into groups, and then by arranging such groups, so far as the case admitted, in the order of increasing or diminishing complexity to man upwards or from man downwards, have great and permanent value, apart altogether from their bearing on theories of organic evolution. To regard them simply as blind gropings towards a conjectural Phylogeny, is to render them scanty justice. In examining the relation of a given organ to its function in man, the principal method of research is to range the forms of this organ serially as they are found in the descending scale, regarding the simpler terms as steps in the ladder by which to rise to the more complex. As a picture of Nature, the value of

the organic *scale* may be contested; but it is one of the most potent tools for investigating Nature—forged in Biology, and afterwards available in every other science.

Linnæus, born May 3rd, 1707, at Rashult in the province of Smaland, Sweden, was the son of a poor village pastor, an enthusiastic florist, whose hives and flower-beds were not seldom disturbed by the wild bees and plants brought into them by his son. The boy, refusing a clerical life, was apprenticed to a shoemaker. But Rothman, rector of the school to which he had been sent, saw his genius, and supplied him with Tournefort's treatise on Botany. He was sent to the University of Lund on a pittance of eight pounds a year, and thence to Stockholm, passing through miserable straits of poverty; mending his own shoes with the bark of trees; but following his work of observing plants and insects with unflagging zeal. Celsius, a Professor of Divinity and ardent naturalist, at last recognised his power, provided him with board and lodging, and his time of suffering was over.

In 1731 he was charged with an expedition to Lapland, returning with a mass of observations on its natural history and its inhabitants. Of these the botanical alone were published by himself: the rest posthumously. In 1735 he visited Holland. In Leyden he came into contact with Boerhaave, than at the height of his reputation, who obtained for him the charge of the botanical gardens and collections of Cliffort, a man of great wealth living near Haarlem. Here Linnæus published the first draft of his *Systema Naturæ* (1735); his *Fundamenta Botanica* (1736); and in the following year, the *Genera Plantarum*, the *Classes Plantarum*, and the *Critica Botanica*. He made at this time a short tour in England, where he was rather coldly received by Sir Hans Sloane. In Paris he was more cordially welcomed by the brothers Anthony and Bernard de Jussieu.

In 1741 he was appointed Professor of Physic and Anatomy at Upsala. He continued to lecture on Materia Medica and on every branch of Natural History, till 1774, when a stroke of apoplexy disabled him. He died a month after Haller, with whom he had held animated controversy, 10th January 1778, and was buried with great honour in the cathedral of Upsala.

Linnæus is commonly thought of as the constructor of the artificial system of classifying plants which bears his name, and is unfavourably contrasted with the constructors of the Natural system. This estimate of his work is entirely inadequate. His *Systema Naturæ*, first published in 1735, and republished by him in successive editions till 1770, was a comprehensive survey of the "three kingdoms of Nature, systematically arranged in classes, orders, genera, and species." In the formation of natural groups, very much had been done by Aristotle, and his work was carried on in the 15th and 16th centuries by Aldrovandus, Conrad Gesner, and others; but the merit of first arranging these groups in orderly succession belongs to Linnæus.

Owing to the greater complexity of functions and organs in the animal kingdom, this process, especially the latter part of it, was far more possible with animals than with plants. Linnæus, in 1735, distinguished six sub-kingdoms: 1. Quadrupeds, afterwards called by him Mammalia; 2. Birds; 3. Amphibia, in which Reptiles were included; 4. Fishes; 5. Insects; 6. Worms. Each was subdivided into orders. Mammals, *e.g.*, were arranged in the following orders: *a.* Anthropomorpha or Primates, including the genera Man, Ape, Sloth. *b.* Feræ or Carnivora. *c.* Glires or Rodents. *d.* Jumenta, including Horse, Hippopotamus, Elephant, and Pig. *e.* Pecora or Ruminants. In subsequent editions the scheme was somewhat modified: but it was not substantially altered till, at the close of the century, the invertebrate terms of the series received vast development under Lamarck. Linnæus made an attempt to illustrate the diminishing complexity of his descending series as shown in the structure of the heart and the respiratory system: an attempt renewed afterwards in a far more effective way by Vicq d'Azyr and John Hunter.

In the vegetal kingdom, where the differentiation of organs is less conspicuous, Linnæus found the formation of natural groups, and especially an attempt at serial arrangement, to be impracticable. He constructed, therefore, the well-known provisional system which bears his name, based on a single character, the sexuality of plants: a character recognised vaguely by some previous botanists, as by Burkhard in 1702, and more explicitly by Vaillant (d. 1722), to whom Linnæus freely owned his obligations. As a mode of orderly arrangement and simple nomenclature, the value of this artificial system to botanists had been incalculable. But Linnæus most emphatically maintained the necessity for a Natural system based on no single character, but on the aggregate of real affinities, though he was not able himself to construct it. [J. H. B.]

Life by Stoever, translated by Joseph Trapp (London, 1794). Portrait by Roslin (copy, Botanical Gardens, Oxf.).

BERNARD DE JUSSIEU, b. 1699, d. 1777.

The subject of this notice was a native of Lyons, and belonged to a well-known family, of which several members were distinguished botanists. When only 17 years of age BERNARD DE JUSSIEU accompanied his elder brother, Antoine, on a tour for the purpose of studying the plants of the Pyrenees, of Spain, and of Portugal; and, on the conclusion of their journey, he explored the Lyonnais and western slope of the Alps with a similar object. In 1722 he succeeded Vaillant in the charge of the King's Garden at Paris, where his intelligence and zeal rapidly effected great improvements. He arranged and catalogued, according to a natural system, the plants in the Royal Garden of Trianon; and this was the starting-

point of the better-known work of his nephew. He also wrote a short essay on *Sea-Polyps*—previously taken for marine plants—of which he made known the animal nature.

Bernard de Jussieu united intellectual powers of a high order with singular modesty and absence of self-assertion. When told of some one who had appropriated, without acknowledgment, one of his original discoveries, he simply replied, "What does it matter, so long as the thing itself be known!" And Condorcet said of him: "The conspicuous feature of his character is a striking contrast of zeal for the progress of science and of indifference for the honour of having contributed to it." In consequence of this disposition, he has left few writings; but his letters show that the chief place in his thoughts was occupied with the idea of a Natural method of classification, which he declared to be "the hope and aspiration of every botanist." His work was continued by his nephew, Antoine Laurent de Jussieu (1748-1836), whose great *Genera Plantarum*, begun in 1788, was the first systematic exposition of the Natural system of classifying plants, based not merely on the formation of natural groups, but on the subordination of characters. It must not be forgotten that one of the most important features of that system, the division of flowering plants into monocotyledonous and dicotyledonous, was indicated by Ray in the previous century. But Ray had not appreciated its full importance: and in his system it was made subordinate to the very unimportant distinction between plants and trees. [T. F.-P.]

Condorcet: *Éloges*. Portrait by Mdlle. Basseport.

HALLER (*Albrecht von*), b. 1708, d. 1777.

HALLER was born at Berne, October 16, 1708. His father was an advocate of distinction, and intended his son for a clergyman; but as he showed an early inclination for science, he was sent to Tübingen to study anatomy and medicine. Thence, in 1725, he went to Leyden, where Boerhaave was lecturing on medicine, and Albinus on anatomy and surgery. He studied subsequently in London, Oxford, and Paris; returned to Switzerland, to read mathematics, with John Bernoulli at Basle; and in 1735 began to practise his profession at Berne. But in the following year George II. offered him the Professorship of Medicine, Surgery, Anatomy, and Botany at Göttingen, and this appointment he held for eighteen years. In 1753 weak health compelled him to retire to Berne, where he continued a life of unremitting study, combined with duties of active citizenship, till his death.

Haller's published writings, consisting of some 200 works, embrace many forms of literature and contributions to many sciences. In Botany alone his labours were immense. He originated a system

of classification which rivalled that of Linnæus ; he collected materials for a complete Flora of Switzerland, and in many toilsome and perilous ascents he made extensive studies of Alpine vegetation. On Embryology, on the movements of the heart, on respiration, and on the formation of the bones, he has left many valuable observations. His principal discovery, that of nervous and muscular irritability, holds an acknowledged place among established physiological principles. Emancipating himself from the two prevailing theories of vital phenomena, the one mechanical, the other metaphysical and spiritualist, he sought to distinguish the phenomena peculiar to living substances. These he defined as sensibility seated in nervous tissue ; irritability, in muscular fibre. He examined the variations in the intensity of irritability in different parts of the muscular system : predicting the existence, not then directly ascertained, of muscular fibres in the arteries. In the heart, diaphragm, and intestines the irritability was greatest ; in the voluntary muscles least : hence the continued action of the former during sleep. Grouping then the facts of life round these two principles, he prepared the way for the conception of Biology as a science distinct from Physics and Chemistry ; dependent upon them, but with definite laws of its own. Among the predecessors of Bichat, Haller holds a most important place. [J. H. B.]

Sir M. Foster : *Lectures on the Hist. of Physiology. Phil. Pos.* iii. 40 ; *Pos. Pol.* i. 458, and iii. 507.

VICQ D'AZYR (*Félix*), b. 1748, d. 1794.

VICQ D'AZYR was born at the little town of Valognes, not far from Cherbourg, in Normandy. Intended for the Church, but abandoning that career for speculative life, he went in 1765 to Paris, and threw himself into the tide of intellectual activity then at its height in that city ; adopting as his own special study the subjects of human and comparative anatomy and natural history. To these he made so many and such important contributions, that he was chosen to succeed Buffon at the Académie des Sciences ; and the discourse which it was his duty to pronounce on his illustrious predecessor ranks as a model in that style of composition. His special researches on the cervical nerves in man, and on the structure of the eye, the ear, and vocal apparatus in birds and some other vertebrates, are of considerable value. But his most important work is the *Discours sur l'Anatomie*, prefixed to an extensive treatise on Anatomy and Physiology, representing in coloured plates the various organs of man and animals, of which the first volume, a large folio, the only one completed, appeared in 1786. In this very striking dissertation, the methods of biological research are stated in a masterly and comprehensive way. The value of experiment on living bodies is not denied, but the inherent difficulties involved

in it, owing to the abnormal disturbances which it creates, are emphatically stated; and the superiority of the comparative method as an instrument of research is insisted on. The object of this treatise was to examine homologous organs and functions throughout the descending scale of animal life. His scheme included nine distinct functions:—digestion, nutrition, circulation, respiration, secretion, ossification, generation, irritability, sensibility. For philosophical breadth his work deserves comparison with that of John Hunter, whose continental fame was unfortunately so long retarded.

[T. F.-P.]

Œuvres de Vicq d'Azyr, par Jacq. L. Moreau (de la Sarthe), Paris, 1805. Vicq D'Azyr died of a chill caught at Robespierre's Festival of the *Être Suprême*.

LAMARCK (*Jean Baptiste Pierre Antoine*), b. 1744, d. 1829.

Lamarck, the founder of Invertebrate Zoology, was born of a noble family at Bazentin, in Picardy, August 1, 1744. He was educated by the Jesuits at Amiens; but at the age of 17 entered the army, and served against the English and Dutch. Afterwards he studied medicine in Paris; but he soon concentrated his attention on botanical science, forming a system of classification, intermediate between that of Jussieu and Linnæus, which was presented to the Académie des Sciences and attracted the attention of Buffon. During the Revolution he superintended the Royal Gardens as Daubenton's assistant. On the institution of the Museum, in 1793, he was made Professor of Zoology with Geoffroy Saint-Hilaire and Lacépède; the department allotted to him being the classes of lower animals, known to us now as Invertebrates, but then represented merely by the two last orders of Linnæus—insects and worms. Lamarck recast the whole classification of Linnæus. Reviving the masterly conception of Aristotle, he saw that the animal kingdom was divisible into two provinces—Vertebrate and Invertebrate: the former comprehending the first four classes of Linnæus, the latter being in very many of its departments unexplored. Lamarck distinguished ten classes in this sub-kingdom, ranging them in the following order:—Mollusca, Cirrhipeda, Annelida, Crustacea, Arachnida, Insecta, Vermes, Radiata, Polyps, Infusoria. This, though falling short in many ways of the results of modern research, implied an immense advance on previous knowledge. His *Système des Animaux sans Vertèbres* was published in 1801; the larger work on the same subject between 1815 and 1822.

It was in 1809 that he published a work of even greater and more permanent interest, *Philosophie Zoologique*, which, however, attracted but little attention, till Comte appreciated its importance in the third volume of his *Philosophie Positive*. Lamarck in this work, after reciting the principal outlines of his classification, maintains that species are not absolutely constant, but in long periods are

mutable; and, further, he sets forth causes accounting for their transformation. It is admitted, he says, by all naturalists that in many departments of zoology and botany the difficulty of distinguishing between differences which are specific and those which are mere variations, such as a breeder can produce, is extreme. The difficulty increases with every addition to our knowledge. Lines of demarcation hitherto deemed impassable are continually being effaced. If our knowledge were still greater, the transitions between each species and those adjacent to it in the same genus would be imperceptible.

Was there, then, any known force that could be regarded as operative in the gradual transformation of species? Lamarck found one in the accepted principle, that organs are enlarged by exercise and atrophied by disuse, and in the belief that such a change in either direction would be inherited. Suppose, then, that a change in the environment brought about a change in the animal's wants —as, *e.g.*, by changing dry land into marsh, or by the growth of trees with higher and more inaccessible foliage, etc.—the new wants, involving for their satisfaction new muscular adjustments, would promote change in certain parts and diminish it in others. The accumulation of small changes would, in the course of æons, issue in forms so distinct as to constitute new species, genera, or even orders. Lamarck admitted that the animals depicted on Egyptian monuments have remained specifically unchanged. But 3000 or 4000 years was but a brief moment in the history of Life upon the Earth.

Another hypothesis as to the transformation of species is now current; and Lamarck's principle of the inheritance of changes due to use or disuse has been called in question. These points cannot be discussed here. Yet it may be conjectured that when the science of Human Nature has made more progress, and the small space in the long record of organic evolution which relates to Man's destiny is seen to be more important than the rest, the question of the Origin of Species, though still debated, will be somewhat less prominent than now. Meanwhile the discussion, as Comte, who disagreed with Lamarck's hypothesis, always maintained, has done much for the study of what is almost the greatest of biological problems: man's power to modify organisms by variations of their environment.

In December 1829 Lamarck died, poor and almost forgotten by the scientific world, at the age of 85. He had been long blind, and his only comfort lay in his daughter, who for many years had been his devoted assistant. [J. H. B.]

A. S. Packard, the Younger: *Lamarck, the Founder of Evolution*. The *Zoologie Philosophique* is in the Scientific Division of the Positivist Library. *Phil. Pos.* iii. 42 and 43; and *Pos. Pol.* i. 529, iii. 528. Lamarck was buried in the cemetery of Montparnasse, Paris, in a common grave, from which his bones were removed a few years later.

BLAINVILLE (*Henri Marie Ducrotay de*), b. 1778, d. 1850.

BLAINVILLE was born at Arques, in Normandy, of a noble family, September 12, 1778. Destined originally for the army, he entered the École de Génie in Paris. At the age of 27, Cuvier's lectures turned his attention to comparative anatomy. He became a doctor of medicine, worked under Cuvier, and was appointed, in 1812, Professor of Zoology and Physiology at the Faculty of Sciences. In 1816 he visited England, and studied for some time in Hunter's Museum. In 1830 he succeeded Lamarck as Professor of the Natural History of Mollusca and Radiata ; and two years afterwards he was appointed to Cuvier's chair of Comparative Anatomy.

His *Ostéographie*, dealing with extinct and actual vertebrates, and his *Manuel de Malacologie*, are those of his works best known to naturalists. But that which distinguishes him from other biologists, the philosophic depth of his views of Life, is best shown in his *Principes d'Anatomie Comparée*, of which the first and only completed volume was published in 1822. In the Introduction to this work will be found the definition of Life which Comte (*Phil. Pos.* iii. 40) considered the most adequate yet given—the double movement of composition and decomposition proceeding simultaneously throughout the organism ; nor is the fundamental conception of environment absent, although not stated with the same explicitness as by Comte himself, who included in it " not merely the fluid in which the organism moved, but the sum total of all external circumstances of whatever kind that acted on it." Blainville's comprehensive survey, in this Introduction, of the distinctions between organic and inorganic bodies is of great and permanent value.

Blainville died suddenly, 1st May 1850. He was a friend of Comte, who attended his lectures, and who dedicated the *Philosophie Positive* to him and to Fourier. [J. H. B.]

The last work of Blainville mentioned here is in the Scientific Division of the Positivist Library. He is buried in Père La Chaise, Paris. For Comte's speech at his funeral, see *Pos. Pol.* i. 595.

BROUSSAIS (*François Joseph Victor*), b. 1772, d. 1838.

BROUSSAIS was born at St. Malo, 17th December 1772. His father was a physician in that town, and brought up his son, after a classical course at the college of Dinan, to his own profession. Young Broussais entered the navy as surgeon, and served there for some years. In 1800 he came to Paris, followed Bichat's courses, and became a doctor of medicine ; his inaugural thesis on fever indicating already the form of his characteristic doctrine—that disease was a modified function of a definite organ. In 1804 he joined the medical service of the army, and served through the

greater part of the wars that followed. Notwithstanding his absorbing duties, he found time for one of his principal works, the *History of Chronic Inflammations*, published in 1808. After the war he was appointed Professor of Medicine at the military hospital of Val-de-Grâce. He joined the Academy of Medicine, founded in 1823, and became Professor of Pathology and Therapeutics in the Faculty of Medicine in 1831. Here he worked energetically till within a few days of his death, following on an apoplectic seizure, 17th November 1838. In his later years Broussais adopted the views of Gall as to the localisation of emotions and tendencies in special parts of the brain. In 1826 he was amongst those who listened to Comte's first course of Positive Philosophy.

The two leading ideas of Broussais were the conception of disease as a simple modification by excess or defect of a normal function; and the connection of this altered function with a definite organ or tissue. In both of these the influence of Bichat is obvious; and to the disciple no less than to the master the emancipation of medicine during the present century from the disastrous dominion of metaphysical entities is in great part due. The conclusion to which the method led was not always borne out by experience. Thus his celebrated hypothesis, that continued fever was an inflammation of the intestinal mucous membrane, has been found partially true in the case of one kind of fever only. But the method itself was sure to lead to the truth sooner or later. It supplied its own means of proof or disproof in each case. It was possible to observe and to think about disease scientifically when the facts of disease were regarded as facts of biology, as modifications of a normal function, referred, like other functions, to a distinct tissue or organ. In therapeutics the same method held good. The problem was to find the agent modifying the tissue or organ by restraint or by stimulus of its action. [J. H. B.]

See Comte's review of Broussais' *De l'Irritation et de la Folie* (1828), *Early Essays*, p. 333. Also, *Phil. Pos.* iii. 40, and *Pos. Pol.* ii. 359. Three works of Broussais, *Propositions on Medicine*, *History of Chronic Inflammations*, and *Irritation and Madness*, are in the Positivist Library: the first two in the Scientific Division, the third in the Synthetic. Broussais is buried at Vitry-sur-Seine.

MORGAGNI (*Giovanni Battista*), b. 1682, d. 1771.

MORGAGNI, the principal institutor of Morbid Anatomy, was born at Forli in 1682. He studied medicine at Bologna, and in 1715 became Professor of Anatomy in the University of Padua. His great work, the result of his life's labour, *Anatomical Researches into the Seats and Causes of Disease*, was not published till his 80th year, in 1761. He died ten years afterwards in the enjoyment of a European reputation. The importance of his great work lay, first, in that the study of disease was raised by it from the metaphysical discussion of intangible abstractions to the positive investigation

of definite organs; and secondly, in that the observation of the diseased organ elicited the fact that not the whole organ, but only certain of its component tissues, were affected in each case. Morgagni therefore prepared the way for the great biological renovation effected by Bichat, the analysis of organs into their component tissues. Pinel's researches into the diseases of mucous membranes, founded on the method which Morgagni had so vigorously initiated, gave, as is known, the immediate stimulus to Bichat's work.

[J. H. B.]

Phil. Pos. III. 41. Morgagni is buried at S. Massimo's, Padua.

GALL (*Franz Joseph*), b. 1757, d. 1828.

The founder of Cerebral Physiology was born at Tiefenbrunn, in Baden, on the 9th March 1757. His father, a physician, sent him to Vienna to study medicine under Stoll and Van Swieten; and there GALL remained for many years. His attention had been called, when a boy at school, to physiognomic differences among his school-fellows, and especially to the connection of prominent eyeballs with a gift for language. Hence began a long train of observations, pursued for many years in silence, till, in 1796, he announced his results in a course of private lectures. The first published notice of them was two years later. His views roused attention, and in 1802 the Austrian Government, regarding them as subversive of orthodoxy, forbade their further publication. In the following years he lectured through the principal cities of Germany; and in 1807 he found a permanent home in Paris. There (in 1810) his great anatomical work, in five folio volumes, on the *Anatomy and Physiology of the Nervous System and the Brain*, was published. His systematic treatise, in six volumes, on the *Functions of the Brain*, appeared in 1825. In 1819 he was naturalised as a French citizen. In 1821 he endeavoured, with the help of Geoffroy St.-Hilaire, to enter the Académie des Sciences, but was rejected. Gall died at Montrouge, near Paris, 22nd August 1828. His tomb is in Père La Chaise.

A remarkable feature of Gall's career is the persistence with which he carried on a single class of researches from youth to age. Throughout his life he set himself to investigate the innate functions constituting the moral and mental life of man and of the higher animals, and the correlation of those functions with corresponding organs. The value of his work does not depend on the crude hypothesis as to the localisation of cerebral functions with which his name is too exclusively associated. Two distinct results of his work are to be noted. First, there is the mass of observations on the psychical nature of man and other animals; and, above all, the demonstration that certain moral and intellectual propensities

are innate in them, and are not the result of sensuous impressions. Secondly, there is his conception of the brain as a collection of organs having those propensities for their functions. Anxious as Gall was to give vividness and precision to his views by pointing to the external form of the skull as evidence of the conformation of the brain, and of the general mould of character, it is evident to careful readers of his work that these observations were not the main foundation of it, though, in the fervour of the controversy, which lasted his whole life long, he was often led into rash and untenable statements.

But in his principal work he insists emphatically (see *Fonctions du Cerveau*, vol. iii. pp. 142-5), that he "owes nearly all his anatomical discoveries to his physiological and pathological conceptions;" that "the knowledge of parts and of their form, direction, consistence, or colour, never leads to the knowledge of their functions;" that "the knowledge of functions has nearly always preceded that of organs." The title of this work, *Functions of the Brain*, is significant. The word *Phrenology* was never used by him; it was coined afterwards by his disciples; most of whom, Comte observes, "as is too often the case, resembled him in nothing but his errors." On the whole, it may be said that too much prominence has been given to Gall's attempts precisely to localise the portions of brain-substance allotted to each function. The value of this premature effort lay in the vividness and precision which it gave to the theory of innate propensities. To effect great changes in belief, and stir the mental apathy of the mass even of cultivated minds, such bold hypotheses have, as Comte observes, often to be hazarded (*Pos. Pol.* i. 129).

His analysis of psychical functions rested, in the main, on the comparison of man with the higher vertebrates; a field in which Georges Leroy had already done good service. In the case of certain elementary functions, as the sexual and maternal instincts, the propensities to destroy or to construct, the love of praise and of power, the feelings of friendship, veneration, and pity, Gall's analysis was carried on with singular vigour and acuteness, and supported by a mass of valuable observations.

In the intellectual region he failed utterly; and it is important to understand why he failed. The criterion on which he relied in attempting to analyse man's nature was the observation of animals. Of man's social evolution he took no account. That the higher animals carry on reasoning processes, Leroy had shown abundantly; and Gall added many valuable observations of his own to the same effect. Nevertheless the degree in which human reason rises above that of animals is enormous; and it results from the social state in which man alone of the higher vertebrates has lived for a long course of millenniums. An adequate comprehension of human reason involves the analysis of language, in which it has been gradually stored up, and the examination of the logical processes by which the creative intellects of mankind have done their work.

Comte regarded Gall's work as of the highest importance, while keenly alive to its shortcomings. He set extreme value on his demonstration, that in the psychical nature of man intellectual processes did not play the overweening part commonly assigned to them: that the motor force of moral impulses, selfish or unselfish, was far greater. He adopted very largely Gall's view of the self-regarding instincts—pointing out, however, that Gall had omitted the most fundamental of all, that of self-preservation or nutrition. His distinction of the three altruistic instincts of Attachment, Veneration, and Benevolence, he accepted almost entirely. That altruism should thus be clearly conceived as innate (see HUME) was, he considered, a scientific discovery not less momentous in its final results than that of Copernicus.

The principal defects of Gall's work are (1) the unnecessary multiplication of his supposed cerebral organs, and in many cases their confused arrangement; (2) his irrational conception of intellectual functions, already noticed; (3) the entire omission of the correlation of the brain with the other organs of the body. Had Gall allowed himself to profit by the studies of his great contemporary, Cabanis, he would have avoided this last fundamental error [see CABANIS]. However mistaken the view of the older physicians, that the passions were seated in the heart, liver, and other organs, it was an equally grave mistake to ignore the continuous action and reaction of these organs with the brain, which has to be taken into account in every arrangement, medical or moral, for the wise control and modification of human nature.

These defects Comte sought to remedy in the entire recast of Gall's system, put forward by him in the first volume of his *Positive Polity*. Comte's scheme is avowedly subjective: that is, it rests on the study of functions, without any attempt at anatomical verification, which he thought might remain for an indefinite period impracticable. This is not the place for a full description of it. A single quotation will indicate his general way of regarding the problem:—"At an early period of my philosophical meditations I had a profound sense both of the importance and the imperfection of Gall's work in science, as of Condorcet's in history. For thirty years I have never ceased to labour at the recasting of both. . . . When I had laid the foundations of Sociology, I saw that Gall, with all his genius, could not construct the true physiology of the brain for want of knowing the laws of social development, which alone could supply the proper starting-point and aim."

Gall was no shallow sciolist. He was a fervid renovator, and was as one-sided as such men often are. But, taken at the lowest estimate, he gave an impulse to the study of the structure and functions of the brain that is acknowledged by those who utterly reject his conclusions. The estimate here taken is far higher than this. Through a cloud of errors there emerges the great truth that, embodied in the physical structure of man, lie innate propensities

to good; overborne often by still stronger propensities to evil, yet capable of asserting their supremacy under conditions of wise training and government. The great problem of human nature which has exercised wise rulers from the beginning of history, appears again, stripped of theologic husks, in a scientific shape; the problem of reducing the functions of the brain to harmonious action by the gradual ascendancy of social over self-regarding impulse. Of the historical conditions for the solution of the problem Gall knew nothing; but among the biologists who prepared the way for its solution he holds the highest place. [J. H. B.]

Pos. Pol. i. 540-594. Gall's *Functions of the Brain* is in the Synthetic Section of the Positivist Library. He is buried in Père La Chaise, Paris. Drawing by Grèvedon (lithograph).

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